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NONSPECIFIC PROTEIN THERAPY IN INFLUENZAL PNEUMONIA

A CONSIDERATION OF THE ACTION OF TYPHOID PROTEIN *

DAVID MURRAY COWIE, M.D.

AND

PAUL WEBLEY BEAVEN, M.D.

ANN ARBOR, MICH.

Because of our experience with the treatment of arthritis and other infections by the intravenous injection of typhoid protein,[1] our attention was drawn to the possible value of this method of treatment in influenzal pneumonia, particularly from the point of view of stimulating polymorphonuclear leukocyte production. We had not, however, had any experience with superimposing an increased temperature on an already febrile condition. For this reason and because of our lack of definite knowledge of what was to us a new pneumonia, we hesitated to try so drastic a measure in the early part of the epidemic. The present report records the treatment of nine cases; a small number, but sufficient to afford some trustworthy knowledge.

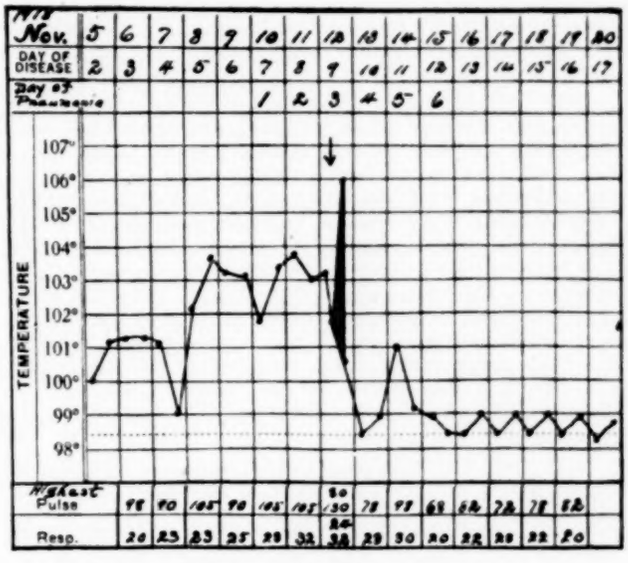

Chart 1.—Temperature, pulse and respiration in Case 1.

REPORT OF CASES

CASE 1 (4385).—Dr. H. entered the contagious hospital, Nov. 5, 1918, with influenza, the second day of the disease. He developed pneumonia on the seventh day of the disease. Five hundred million dead typhoid bacilli were given intravenously, November 12, the third day of the pneumonia. The reaction is shown in Chart 1. In forty-five minutes the patient reacted with a severe chill. The temperature reached 106 F. Previous to the injection the temperature was 101.8. The following morning the temperature was 98.6, and remained normal except for one day, when it reached 101, promptly returning to normal. The signs in the chest gradually cleared up, but the spoken voice was still exaggerated over the right base on discharge.

This patient had a frank pneumonia of the lower right base. The urine showed albumin and casts. The leukocytes were as indicated in Table 1.

CASE 2 (4388).—Harold F. entered the contagious hospital with influenza, Nov. 7, 1918, on the fourth day of the disease. The first signs of pneumonia were discovered, November 11, the eighth day of the disease. Five hundred million dead typhoid bacilli (typhoid vaccine) were given intravenously at 10:30 a. m. A typical protein paroxysm followed. At the time of the injection, the temperature was 102.8. Half an hour later (11 a. m.), it was 100; at noon, 102; at 4 p. m., 98.8; at 6 p. m., 98.6—seven and a half hours after the injection. On the 13th at 8 a. m. the temperature had reached 103. A second intravenous injection of 500 million was given at 10:45 a. m., at which time the temperature had reached 99 F. A typical reaction followed, but the temperature did not go above 101.4. The chill began in thirty minutes and continued thirty minutes. Seven and a half hours after the injection, the temperature had reached 95.9, and it did not go above normal thereafter.

This patient had a well-marked double pneumonia, the right side being mostly involved. The urine never showed albumin or casts. The leukocyte counts are given in Table 2.

November 13, two days after the second intravenous injection, consolidation of the left base was the same as before the injection. There was now a slight patch on the right side below the angle of the scapula which we had not discovered before. November 25, physical signs were still present but were diminished. The patient was discharged. He was seen again two weeks later, and there was still evidence of the previous consolidation in the left base. He was feeling perfectly well and had been so since the second injection. It was difficult to keep this patient in bed after the second injection.

TABLE 1.—LEUKOCYTE COUNTS IN CASE 1

Nov. 12, 1918, first and only injection, 500 million dead typhoid bacilli:	Leukocytes	Polys. %	Total Lymph. %
Control 24 hours before injection	3,600	57	43
Control 12 hours before injection	3,300	55	45
Control 3 hours before injection	3,000	58	42
½ hour after injection	4,200	53	47
4 hours after injection	3,000	82	18
6 hours after injection	7,200	87	13
9 hours after injection	5,500	85	15
24 hours after injection	4,500	49	51
48 hours after injection	4,000	62	38

* From the Department of Pediatrics and Contagious Diseases, University of Michigan.

1. Cowie, D. M., and Calhoun, Henrietta: Nonspecific Therapy in Arthritis and Infections, Arch. Int. Med. **23**: 69-131 (Jan.) 1919.

CASE 3 (4443).—M. G., boy, aged 13, entered the contagious hospital, Dec. 13, 1918, with influenzal pneumonia in the left base, the fifth day of his illness. We have called this the first day of his pneumonia. The patient looked in fair condition. The process did not seem to be marked until the fourth day in the hospital, December 16, when distinct

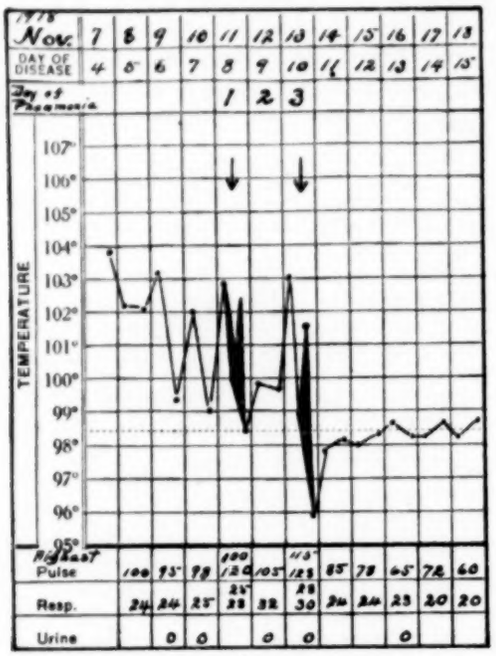

Chart 2.—Temperature, pulse and respiration in Case 2.

new areas were discovered in both bases. He still did not seem very ill. He was sleeping and eating well and did not spit blood. His lips were slightly cyanotic. The temperature was 104.8 in the morning. At 4:45 p. m. 1 billion dead typhoid bacilli were given intravenously. At this time his temperature was 105.6. Forty minutes later he had a severe chill lasting twenty-two minutes. The temperature did not increase, but an hour and fifteen minutes later it was the same, axillary. The following morning at 8, the temperature was 97. The patient was definitely better subjectively and objectively. The temperature remained down all of this day.

TABLE 2.—LEUKOCYTE COUNTS IN CASE 2

	Leukocytes
Nov. 11, 1918, first injection, 500 million typhoid bacilli:	
Control ½ hour before injection	7,500
½ hour after injection	
1 hour after injection	3,000
4 hours after injection	12,000
6 hours after injection	10,000
8 hours after injection	9,000
24 hours after injection	7,800
Oct. 13, 1918, second injection, 500 million typhoid vaccine:	
Control ½ hour before injection	6,000
½ hour after injection	4,500
2 hours after injection	11,000
8 hours after injection	10,500

The following morning at 6 the temperature had again risen to 104.8, and the patient was definitely worse; in fact, he was very ill. At 9 a. m. a half billion dead typhoid bacilli were given intravenously. He reacted just as severely as with the first injection. The temperature reached 106.8 axillary. There was a characteristic fall in the temperature which soon returned to its former height. He grew progressively worse, and died on the second day after the last injection.

The effect of the protein on the pulse and respiration was quite marked, as will be seen from Chart 3.

Urine showed albumin and casts; these did not appear until after the injection. The leukocyte counts are given in Table 3.

CASE 4 (4441).—P. K., man, aged 39, entered the contagious hospital, Dec. 16, 1918, with double influenzal pneumonia. He said that he had been ill five days, but we subsequently learned from a friend that he had been ill for two weeks previous to his entrance to the hospital. He was irrational. There was general cyanosis, particularly noticeable on extremities. One billion dead typhoid bacilli were given intravenously the day of entrance at 5 p. m. He reacted typically; the chill began in thirty minutes after the injection and lasted fifty minutes. The temperature before the injection was 103 and reached 105. The following morning the temperature was down to 100. The patient, however, showed no signs of improvement. He became more delirious, more cyanotic, and died at 3:45 a. m., December 18. The urine showed albumin and casts. The leukocytes before the injection were 4,400, one hour later 3,200, and the following morning at 11 a. m., 2,600.

TABLE 3.—LEUKOCYTE COUNTS IN CASE 3

	Leukocytes
12/16/18:	
4:00 p. m. control	8,300
4:45 p. m. 1 billion dead typhoid bacilli	
5:45 p. m.	7,400
6:45 p. m.	8,800
12/17/18:	
11:00 a. m.	15,800

The physical signs, if anything, were more marked after the intravenous injection.

CASE 5 (4439).—E. S., woman, aged 20, entered the contagious hospital, Dec. 15, 1918, moribund, with double influenzal pneumonia, the eighth day of the disease and the third day of the pneumonia. There was general cyanosis. Five hundred million dead typhoid bacilli were given intravenously, December 16, at 10:45 a. m. A prompt reaction followed, the temperature reaching 106.8. Before the injection the temperature was 104. The chill began forty-five minutes after the injection and lasted ten minutes. The patient was worse after the reaction. The temperature went down to 100 twelve hours after injection. The cyanosis, however, was progressive from the time the patient entered the hospital. She died the tenth day of her illness. The urine gave a marked reaction for albumin, and there were numerous casts. The leukocytic changes are given in Table 4.

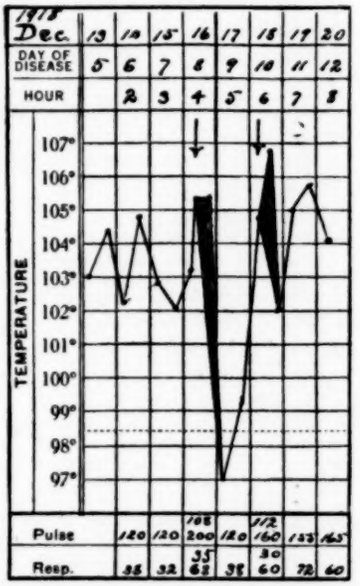

Chart 3.—Temperature, pulse and respiration in Case 3.

CASE 6 (4459).—F. R., man, aged 21, entered the contagious hospital, Dec. 29, 1919, with influenza, the fifth day of the disease. No lung signs could be made out, but other signs pointed to a beginning pneumonia. The following day, December 30, the patient was given 400 million dead typhoid bacilli intravenously at 1 p. m. At this time the temperature was 103.6. There was no reaction for three hours, at which time the patient had a slight chill and the temperature rose to 105 (6 p. m.), after which it gradually declined, as shown in Chart 6. It will be observed that a high temperature was maintained for two days following the injection, but not as high as previous to the injection. This patient was very ill; he became delirious and developed a marked psychosis, for which he is still detained in the psychopathic hospital, one month after the temperature reached normal. We were never able to get any marked

physical signs from this patient, for it was almost impossible to examine him. The marked cough, bloody sputum, high fever and other characteristic symptoms led us to regard the case as one of pneumonia.

The urine was negative at all times. The leukocytes were as given in Table 5.

CASE 7 (4460).—Miss N., aged 25, entered the contagious hospital, Dec. 29, 1918, with uncomplicated influenza, the

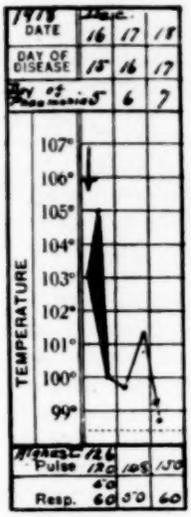

Chart 4.—Temperature, pulse and respiration in Case 4.

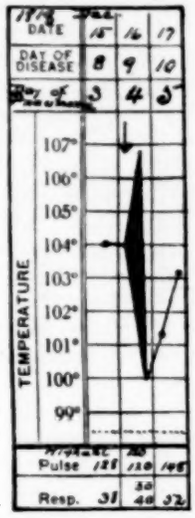

Chart 5.—Temperature, pulse and respiration in Case 5.

second day of her illness. Pneumonia was detected in the right lower lobe the fifth day in hospital. The chest had been carefully examined each day. Inside of the first twenty-four hours, on the second day, she was given one-half billion dead typhoid bacilli intravenously at 6 p. m. At this time the temperature was 104. She reacted with a chill in forty-five minutes. The chill lasted ten minutes. In two hours the patient's temperature reached its acme, 105.2. The lowest temperature, 102.2, was recorded at midnight and at 6 the

TABLE 4.—LEUKOCYTE COUNTS IN CASE 4

	Leukocytes	Polys. %	S. L. %	L. L. %	Trans. %	Eosin. %
12/16/18:						
10:30 a. m. control	5,600	75	18	5	2	
11:00 a. m. 500 million dead typhoid bacilli						
11:30 a. m.	5,400					
12:00 a. m.	4,200					
12:30 a. m.	7,700					
1:00 p. m.	8,300	78	17	4	0	1
2:00 p. m.	5,700					
3:00 p. m.	5,400					
4:00 p. m.	5,600					
6:00 p. m.	9,400					
8:00 p. m.	12,000					
12/17/18:						
11:00 a. m.	19,800					

following morning. It returned to 104 at 10 a. m., and then dropped by quick lysis to normal, where it remained. The patient made a rapid and good recovery.

Albumin and casts were not found in the urine. The leukocytes are recorded in Table 6.

Before the intravenous injection, the process seemed to be confined to the right lower lobe. The day following the injection, a process was detected in the right middle lobe. We considered the patient's condition very serious, but on January 5, the third day after the injection, she began to show definite signs of improvement. The new process in the right middle lobe seemed to be more distinct.

She was discharged, January 15. At this time there was dulness and increased whispered voice over the lower right base. A roentgenogram taken the following day showed the lungs clear, but there was no question of the forgoing signs on the day of discharge.

CASE 8 (4470).—Mr. M. I. entered the contagious hospital, Jan. 6, 1919, with influenzal pneumonia in the left base, the fourth day of the disease and the first day of the pneumonia. Five hundred million dead typhoid bacilli were given intravenously, January 8, at 12 noon. At 12:47 he reacted with a severe chill, which lasted seventeen minutes when the temperature reached 105.6. Before the injection the temperature was 104.2. The following day the patient felt much better, but the night of January 9 he had severe pain in the left chest anteriorly. The respiration became more rapid; a friction rub was heard in the axilla. These signs of pleurisy con-

TABLE 5.—LEUKOCYTE COUNTS IN CASE 6

	Leukocytes
12/30/18 control	5,600
12/31/18 (1 p. m.) control	4,000
1 p. m. 400 million dead typhoid bacilli	
1:10 p. m.	2,300
3:00 p. m.	5,300
6:00 p. m.	5,800
8:00 a. m.	6,600

TABLE 6.—LEUKOCYTE COUNTS IN CASE 7

	Leukocytes	Polys. %	Total Lymph %
Control before injection	3,200	51	49
½ hour after injection	2,500	34	66
1 hour after injection	3,300	30	44
1½ hours after injection	4,000	48	47

tinued until January 27. No effusion could be demonstrated at any time. The urine was negative at all times. The leukocytes on entrance were 9,200.

Nineteen days after the intravenous injection, roentgenoscopy revealed rather extensive signs of bronchopneumonia. The physical signs—dulness and increased whispered voice—continued over these areas. The patient seemed perfectly well. He was discharged from the hospital, February 1.

CASE 9 (4472).—A. R., man, aged 42, entered the contagious hospital, Jan. 7, 1919, with double influenzal pneumonia, the tenth day of his illness, and evidently so far as we could determine, the seventh day of the pneumonia. He came 9 miles in an ambulance and looked moribund when he entered. He raised considerable bloody sputum. His temperature on entrance was 99.6; at 10 a. m. the temperature had reached 103. At 2:30 p. m. he was given a half billion dead typhoid bacilli intravenously. He reacted forty minutes later with a marked chill, which lasted twenty minutes. The temperature reached 105.4 at this time. At 8 p. m. the temperature was 97.3 six and a half hours after the injection. The patient continued to get worse. The temperature never rose above 100 F. axillary. The patient died at 5:50 p. m., January 8, the second day in the hospital. The urine on entrance was negative. The leukocytes were 1,400; no further counts were made.[2]

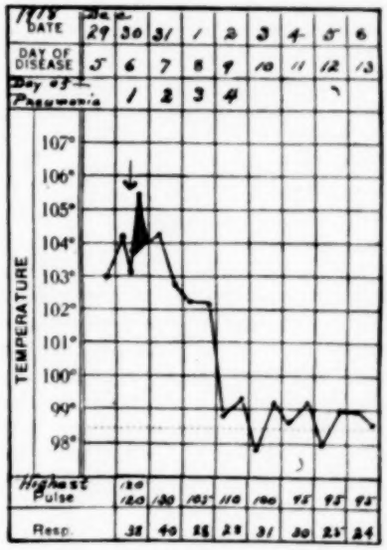

Chart 6.—Temperature, pulse and respiration in Case 6.

2. Since this article was written, we have treated another case of severe influenzal pneumonia by this method, a boy, aged 11, the fifth day of the disease, the second day of the pneumonia, with cyanosis and delirium. Thirty-six hours after the injection, the temperature fell to normal by crisis. There was a pseudocrisis twelve hours after the injection during which the temperature fell from 102.8 to 95.2.

EFFECTS OF THE INJECTIONS

The Effect on the Temperature.—Following the first injection of typhoid protein, there was an abrupt rise of temperature in seven of the nine cases. The rise varied from 1.2 to 4.2 degrees F. The height of the temperature was reached in from half an hour to five hours after the injection. In the two cases that did not react with a rise of temperature (Cases 2 and 3) there was an increase in temperature, however, following the second injection given from forty to forty-eight hours after the first injection. The rise was 2.8 and 3 degrees, respectively.

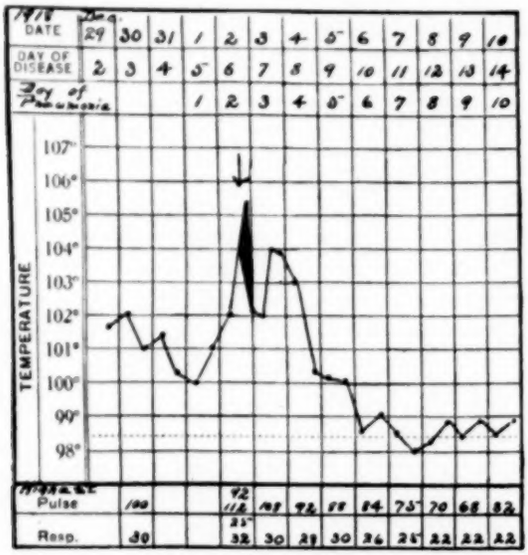

Chart 7.—Temperature, pulse and respiration in Case 7.

The temperature was reduced below the height reached just previous to the injection in eight cases. This reduction occurred from five hours to sixteen hours after the injection, usually within eight hours. The reduction varied from 0.4 to 8.6 degrees. The induced temperature fall was usually more than 3 degrees. In Case 6, in which Table 7 records no fall in temperature following the injection, there was a definite decrease, but this did not occur until the third day. We attribute this to a prolonged protein reaction, such as was observed by Cowie and Calhoun[1] in Case 8 of their series. As there might be a doubt concerning this, we have not included it in the graphic chart or in Table 7. From these observations we conclude that an intravenous injection of typhoid protein in influenzal pneumonia causes a typical clinical protein reaction, which is followed by a marked decrease in the temperature.

The Effect on the Pulse.—Following the injection of typhoid protein, in six of the nine cases there was a rise in the pulse rate. The rise varied from 8 to 50 beats a minute, excepting in Case 3, in which the increase for the first injection was 48, and for the second, 92. In three cases there was no effect on the pulse rate. In those cases in which an increase occurred, it usually amounted to 20 beats a minute. An interesting observation is that the highest pulse was not reached until an hour and sometimes two hours after the injection. A dangerous pulse rate was observed in only one case, referred to above, but even in this case there was no permanent effect on the pulse.

We concluded that an intravenous injection of typhoid protein causes an increase of about 20 beats a minute in the pulse rate in from one to two hours after the injection. This increase is not permanent. We were unable to demonstrate in any way that the myocardium had been injured by the injection.

The Effect on the Respiration.—Following the injection of typhoid protein, the respiration rate was increased in seven of the nine cases. The increase varied from 7 to 15 respirations in all but one case (Case 3). After the first injection of one billion dead typhoid bacilli in this case the increase in the respiratory rate was 33. After the second injection of one-half billion, given two days later, the increase was practically the same, 30. The effect on the respiration, as on the pulse, was not a permanent one.

The Effect on the Physical Signs.—Almost invariably the physical signs were more marked following the injection. This was just as true of those who lived as of those who died. In a large percentage of our influenzal pneumonias the physical signs persisted a long time after the patient was, apparently, well, and, as the same findings occurred in our pneumonia patients treated with typhoid protein, we feel justified in saying that the injection had no effect on the physical signs. We certainly could not demonstrate that the signs were in any way decreased.

The Effect on the Course of the Disease.—In the patients that lived, the symptoms of the disease were terminated by crises in four cases, two on the first day after the injection (Cases 1 and 2), one on the second day (Case 7), and one on the third day (Case 6). In Case 2 the crisis followed the second injection. In one case the symptoms terminated by lysis. In the patients that died, no effect was observed in two instances. There was a decrease of temperature in Case 8. In Case 3 in addition to the decreased temperature, definite signs of general improvement occurred for twenty-four hours following the first injection. In each one of these cases we felt that the course of the disease would have been terminated by death had not the foreign protein been given.

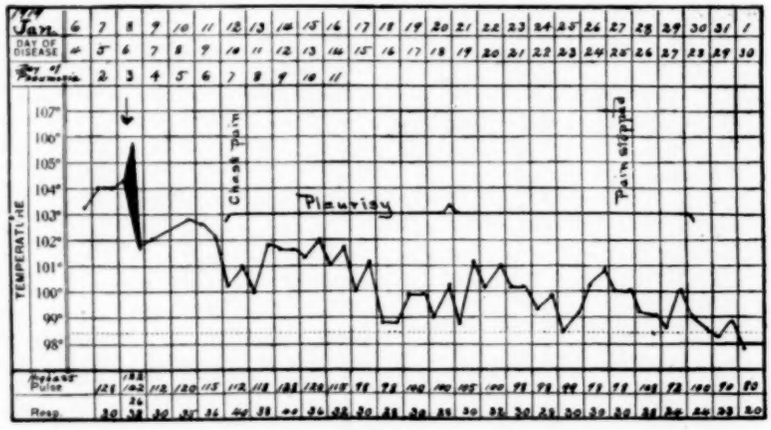

Chart 8.—Temperature, pulse and respiration in Case 8.

An analysis of our charts shows that no improvement was obtained in those patients who received injec-

tions after the third day of the pneumonia (Cases 3, 4, 5 and 9), while those who received the injection not later than the third day recovered.

The Effect on the Leukocytes.—It was not possible for us to carry on a systematic examination of the progressive leukocyte changes in the blood following the injection of the typhoid protein, as has been done by Cowie and Calhoun in other infections. We have enough data to conclude that a fairly typical leukocyte response was obtained in the majority of the cases. The response was usually only of moderate degree. In two patients, both of whom died, there was a marked increase in the leukocytes on the day following the injection, amounting to 8,000 in one case and 14,000 in the other. These may have been prolonged reactions, such as were observed by Cowie and Calhoun, in which a very high leukocytosis was maintained for thirty-six hours after the injection.

The typhoid protein, as a rule, induced no marked or permanent change in the number of the leukocytes.

The Effect on the Urine.—Urine examinations were done before and after the injections in all but one case (Case 9). In two of these, albumin and casts were found on the day following the injection when they had not been present before. One of these patients died. In a third case, albumin and casts appeared on the second day after the injection was given, the day on which the patient died. In the other cases there was no change in the urinary findings.

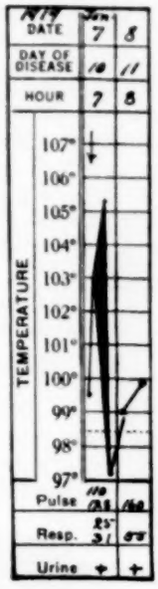

Chart 9.—Temperature, pulse and respiration in Case 9.

CONCLUSIONS

1. An intravenous injection of typhoid protein in influenzal pneumonia is a safe procedure within limitations.

2. Intravenous injection of typhoid protein is indicated only in the beginning stage of the pneumonia, so far as we are able to determine from our limited number of cases.

3. The use of this method of treatment is contraindicated (*a*) in cases of influenzal pneumonia advanced beyond the third day of the disease, or (*b*) when there is undoubted evidence of advanced myocardial insufficiency or acute endocarditis.

4. No more than 500 million dead typhoid bacilli should be given at one injection. For well known reasons, at least forty-eight hours should intervene before another injection is given.

5. The immediate effect of the foreign protein is the development of a typical protein paroxysm, which is followed by a marked decrease in the temperature and a definite improvement in the subjective symptoms, both of which are usually permanent.

6. Following the injection of the typhoid protein, there is a characteristic leukocytic movement. The leukocyte increase in the cases studied is only of moderate degree. There is no permanent improvement in the leukopenia or downward tendency of the leukocytes.

7. The effect on the pulse, respiration, physical signs and urine findings is practically negligible.

8. An intravenous injection of typhoid protein may bring about a termination of the acute symptoms of the disease in from one to three days.

DOSAGE

The clinical reaction is more marked after a billion dose of dead typhoid bacilli, but no more beneficial effect was produced in the blood, subjective symptoms, or on the course of the disease than was noted with the half-billion dose. Our experience from observation of the reactions inclines us to recommend the half-billion dose. It may be a significant fact that in the two cases in which a billion dose was given, both patients died (Table 7).

Care should be taken that at least a day intervenes if more than one dose is given.

TABLE 7.—RESULTS OF PROTEIN INJECTIONS

No.	Case	Injection No.	Size of Dose Billions	Temperature before Injection	Protein Reaction: Height of Temp. after Injection	Protein Reaction: Degrees of Temp. Induced by Injection	Protein Reaction: Time Period of Rise Hr.	Protein Reaction: Lowest Temp. Induced by Injection	Protein Reaction: Degrees of Temp. Reduction Induced by Injection	Time Period of Fall	Temperature Subsequent to Protein Reaction	Result
1	4385	1	½	101.8	106.0	4.2	¾	100.6	1.2	8	Remained normal	Recovered
2	4388	1	½	102.8	100.0	0.0	0	98.6	4.2	8½	Reduction lasted only 24 hours	Recovered
		2	½	99.0	101.4	2.4	1	95.9	3.1	7½	Remained normal	
3	4443	1	1	105.6	105.6	0.0	0	97.0	8.6	16	Reduction lasted only 24 hours	Died
		2	½	104.8	106.8	2.0	1	102.0	2.8	5	Remained down only 8 hours	
4	4441	1	1	103.0	105.2	2.0	1	100.0	3.0	4	Remained down permanently	Died
5	4439	1	½	104.0	106.8	2.8	1	100.0	4.0	12	Following day rose to 103.2	Died
6	4459	1	½	103.6	105.2	1.6	5	104.0	0.0	0	Remained above 102 for two days, then fell to normal by crisis	Recovered
7	4460	1	½	104.0	105.2	1.2	2	102.2	1.8	6	Remained above 102 two days, then fell by crisis	Recovered
8	4470	1	½	104.2	105.6	1.4	1	101.8	2.4	8	Remained between 102 and 103 for three days, then below 102 to end of pleurisy	Recovered
9	4472	1	½	103.0	105.4	2.4	1	97.3	5.7	5	Remained down 12 hours; following night rose to 103	Died

Results from Children's Year Campaign.—The Children's Bureau in a bulletin just issued gives a preliminary accounting of the success of the Children's Year Campaign, begun April 6, 1918, to save 100,000 babies. The reports are not all in yet, but among the first activities was the weighing and measuring of the babies. Of 7,000,000 cards distributed, 1,619,283 have been returned to the bureau, where the information will be tabulated. Twenty-four states have employed new public health nurses, 137 having been employed in ten of the states. One hundred and thirty-four children's health centers were established during the year in fifteen states, with an uncertain number of centers established in nine other states. Forty-three states are conducting back to school and stay in school drives, and a number of communities have established scholarship funds to enable the children of needy parents to continue their education after they reach the legal working age. At least one scholarship for each of the 281,000 schools in the country is the aim. The bureau is planning a conference with foreign child welfare experts.

A STUDY OF ACUTE MASTOIDITIS AT FORT RILEY, KANSAS

J. R. SCOTT, M.D. (NEWTON, KAN.)
Major, M. C., U. S. Army

G. W. SWIFT, M.D. (SEATTLE)
Captain, M. C., U. S. Army

J. J. HOMPES, M.D. (LINCOLN, NEB.)
Captain, M. C., U. S. Army

G. H. ALLEN, M.D. (TOPEKA, KAN.)
Lieutenant, M. C., U. S. Army

AND

E. L. POSEY, M.D. (MAGEE, MISS.)
Lieutenant, M. C., U. S. Army

FORT RILEY, KAN.

Acute mastoiditis as a contributing cause to the ineffective list in army camps has assumed great importance. This is due to (1) the large number of cases; (2) the long convalescence (seven weeks is the average), and (3) the tendency toward imaginary if not real weakness of the individual for several weeks, or even months, following his return to duty. The mastoid wards in the departments of head surgery require more attention from the staff officers, nurses and corpsmen than all other wards. The seriousness of the disease in itself demands constant attention to the many details that are associated with a critical illness in the army. Only those who have been in the service can appreciate the importance of this statement.

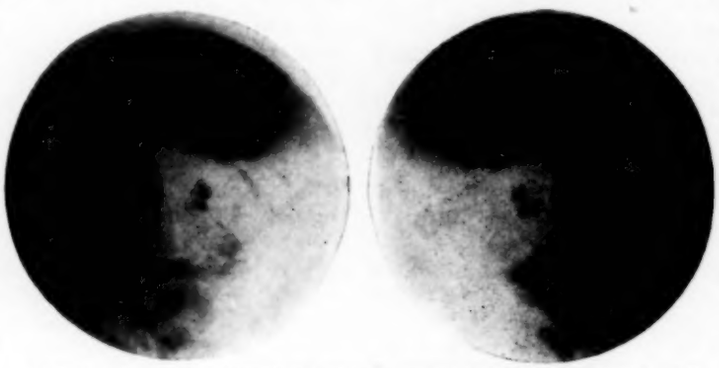

Fig. 1 (Type 1).—Absence of cells in mastoid; double otitis media with tenderness of mastoid area; no operation.

Since each base hospital connected with the various cantonments had mastoid cases in larger numbers than the civil hospitals, and the opportunity for the study of individual cases was favorable, a better knowledge of this disease was the natural result. The unlimited laboratory and roentgenographic facilities, the occurrence during epidemics of the exciting causes of mastoiditis, bringing many cases of a particular type under observation at one time, and finally the opportunity to operate when it was deemed necessary, afforded an unusual opportunity to study this disease.

The last has not been heard of the recent epidemic of influenzal pneumonia, and otitis media will be encountered for at least another year, owing to the hangover virus which took such a terrible toll. Elsewhere a report on the epidemic at Camp Funston has been reported.[1] In it can be found details of interest in connection with this article.

ETIOLOGY

The prevalence of mastoiditis in our army camps is not surprising when analyzed from the etiologic standpoint. In ordinary peace times, mastoiditis is rather infrequent. But our army was suddenly increased many times. Intensive training became the order of the day. Men were suddenly taken from all walks of life and were housed in barracks. Work could not stop because of changes in the weather. Slight indisposition of the individual soldier was not sufficient to permit a luxurious room and a rest from work for a day or a week. The men did not become hardened soldiers in a day. The camp conditions, while for the most part conducive to health and physical development, were for an occasional one here and there just the opposite. An epidemic of mumps and measles, isolated cases of scarlet fever, diphtheria, meningitis, and almost universal tonsillitis, all aided in the development of a rather peculiar condition which was responsible in the end for the increased incidence of two army diseases of importance, pneumonia and mastoiditis.

LOCALITY INFECTION

By the term "locality infection" is meant the occurrence in a locality or army post of a certain organism which is found to predominate either singly or combined, in infections occurring in that particular locality or army post. At one camp, for instance, the hemolytic streptococcus may be the organism found in the tonsil crypts, in pneumonia, in mastoiditis, or other diseases, while in another camp the pneumococcus or *Streptococcus viridans* may be the prevailing organism. Any one of these organisms may become virulent for a certain period and then apparently becomes of little consequence. However, when an epidemic of tonsillitis, measles, scarlet fever or influenza occurs, then the particular organism for a certain locality suddenly assumes the rôle of secondary invader and becomes the predominating factor in complications. That the temporary home for this "locality-infection" organism is in the tonsil crypt is undoubtedly true, though it is found at times in the accessory nasal sinuses.

The spasmodic appearance of a number of cases of acute mastoiditis is not surprising when one considers the foregoing factors as noted in cantonments. This is illustrated in Table 1. During January, February, March, April and May of 1918, the hemolytic streptococcus was the locality infection at Camp Funston. The number of pneumonias and mastoiditis cases (requiring mastoidectomies) as shown in Table 1 was so great that one could speak of it as an epidemic. The organism that predominated in both series of cases was the hemolytic streptococcus, which occurred in 28.2 per cent. of all pneumonias and in 76 per cent.

TABLE 1.—INCIDENCE OF PNEUMONIAS AND MASTOIDECTOMIES AT BASE HOSPITAL, FORT RILEY, IN EARLY MONTHS OF 1918

1918	No. of Pneumonias	No. of Mastoidectomies
January	77	16
February	63	23
March	118	29
April	165	28
May	115	17

1. Stone, W. J., and Swift, G. W.: Influenza and Influenzal Pneumonia Epidemic at Fort Riley, Kansas, J. A. M. A. **72**: 487 (Feb. 15) 1919. Stone, W. J.; Phillips, B. G., and Bliss, W. P.: A Clinical Study of Pneumonia Based on Eight Hundred and Seventy-One Cases, Arch. Int. Med. **22**: 409 (Oct.) 1918.

of the mastoids (cultures from the mastoid cells at time of operation). The term "streptococcus epidemic," therefore, is a better term.

In the recent epidemic of influenza in the same hospital, tissue cultures at necropsy showed the predominating organism again to be the hemolytic streptococcus. It was present singly or combined in 41.1 per cent. of all tissue cultures including the lung, pleural fluid, heart-blood, spleen, nasal sinuses, mastoids and spinal fluid. Blood stream invasion occurred late in this series of cases.[1]

Following the epidemic of influenza, cases of measles began to appear in large numbers, and again pneumonias and mastoiditis. The primary diseases lowered the resistance of the patients, and blood stream invasion by the prevalent organism, the hemolytic streptococcus, again occurred with the resulting complications. In a series of fifty mastoiditis cases beginning in October, 1918, twenty-two cases were complications of measles. The hemolytic streptococcus was found in 46 per cent. of all cases, as shown in Table 2.

From the foregoing statements one must conclude that the occurrence of mastoiditis as seen in army cantonments depends on the surroundings of the individual and the presence of a virulent organism, such as the streptococcus or pneumococcus; further, that the invasion of the mastoid occurs directly from the nasopharynx or the blood stream.

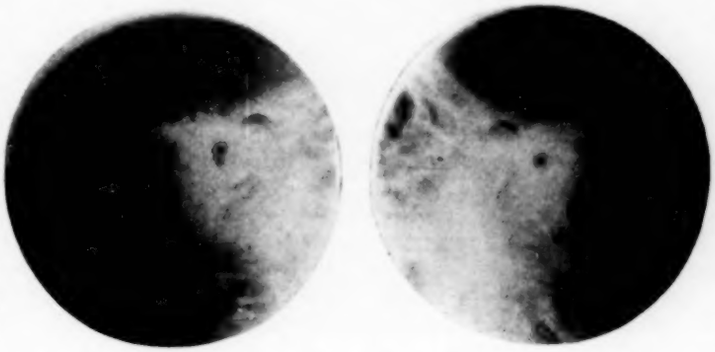

Fig. 2 (Type 1).—Presence of a few cells in posterior tip of right mastoid; double otitis media with tenderness of mastoid area.

PATHOLOGY

The importance of roentgenoscopy in the study of individual mastoid infections cannot be overestimated. The desultory taking of roentgenograms means absolutely nothing. The technic must be perfected with each machine and for each step in the production of a roentgenogram. The clinician must study the finished plate with the roentgenologist. One plate is not always sufficient. Both mastoids must be shown on one plate to afford means of comparison. When a new make of plates is used, the technic must be revised. One person should take all the exposures of a single mastoid case. If these rules are observed, the opening statement will prove true.

VARIATIONS

That all mastoids are similar is true, but a certain variation in the structure of the bone will be noticed after different roentgenograms have been studied. In general the cases fall into three types: (1) a rudimentary type, with a square or rectangular shape, having practically no mastoid cells; (2) a type presenting a more extensive area of large cells situated entirely behind and below the antrum, and (3) a type with a much larger area of many small cells extending into the zygoma, far back and down to the tip. Type 1 is never serious because there are no cells to become infected. The otitis media will eventually subside without operation. Types 2 and 3 must be carefully watched. In subacute cases the first roentgenogram may show a delicate haze over the entire region, the antrum being especially hazy, with areas here and there of denser opacity where the cell walls are thicker and the pus pocketed.

TABLE 2.—INCIDENCE OF ACCOMPANYING DISEASES AND BACTERIOLOGIC SHOWINGS IN FIFTY MASTOIDECTOMIES OPERATED ON BETWEEN OCT. 1 AND DEC. 31, 1918

THE PRECEDING DIAGNOSIS	No. of Cases	Per Cent
Measles	22	44
Tonsillitis	19	38
Pneumonia	3	6
Influenza	6	12
Total	50	
BACTERIOLOGIC SHOWINGS IN CULTURES FROM MASTOID CELLS		
Streptococcus hemolyticus	23	46
Staphylococcus	14	28
No culture	10	20
Miscellaneous	3	6
Total	50	

Bone necrosis will manifest itself by a confluence of the cellular spaces and a denser haziness in the region of the antrum and the tip. This can be detected only by comparison with the roentgenogram of the opposite or normal side. This comparison is of great advantage especially when the normal roentgenogram is on the same plate as the roentgenogram of the side affected. It is relatively true that the two mastoids correspond in size and structure in each individual case. Having the normal mastoid to use for comparison gives a clue to the size and shape of the mastoid, and to the degree of bone necrosis. A postoperative roentgenogram will frequently prove of value in cases that show a tendency toward sluggishness in healing.

Influenza cases develop frequent mastoid involvement without bone necrosis. On the other hand, measles-mastoiditis cases are very prone to develop bone necrosis of the fulminating type. The first necrosis occurs along the chain of cells leading from the antrum to the tip. These cells are deeply situated and have a dependent position as the patient rests in bed. The cell walls are delicate. The course of the sinus is changed at this place and causes an anatomic arrangement of these cells that is not conducive to easy drainage. Blocking at this point results in necrosis both in the tip and in this region. In the roentgenogram they are usually overshadowed by the overhanging posterior wall. When the angle is such as to reveal them they are seen between the dense wall surrounding the internal meatus and the white line just external to this which is the thickened inner table of the sinus as it courses downward to the bulb. When this line blends with the dense shadow of the wall of the meatus, one must study closely for necrosis in the tip cells. The technic, the classification of mastoids into types corresponding to the clinical types, the anatomic variations and the resulting shadow have

been determined in an extensive study of this phase of the subject at the army hospital at Fort Riley with Captain Cummins and Lieutenant Kirklin of the roentgenologic department.

SYMPTOMATOLOGY

Under etiology, the subject of the onset of mastoiditis was discussed. This is of importance in further consideration of the symptomatology. Three distinct types or modes of onset are recognized:

1. Cases in which the otitis media symptoms predominate and the mastoid involvement is slight. The

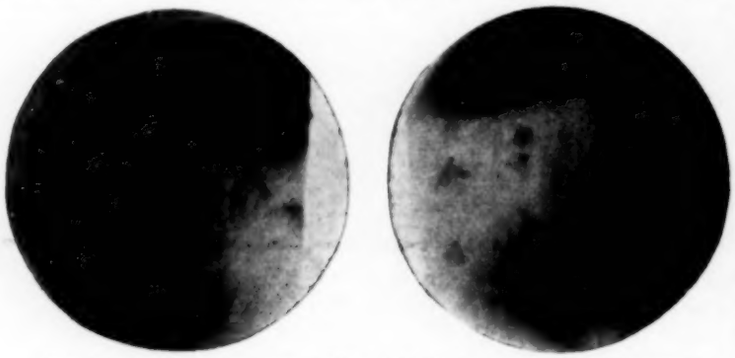

Fig. 3 (Type 2).—Acute mastoiditis (right); no necrosis of cells except between sinus and posterior wall, where a gutter leads from antrum to tip; verified at operation; case following measles; no culture.

roentgenograms of Type 1 (Figs. 1 and 2) illustrate the anatomic features of this series of cases. The drum is bulging on inspection, and the discharge is profuse following rupture or paracentesis. These cases rupture spontaneously shortly after onset. The temperature is higher in this class than in any other. Eventually healing takes place, but not until numerous reopenings have been made in the drum.

2. Cases in which otitis media and mastoiditis appear to develop at one and the same time (Figs. 3 and 4). These cases are serious from the first. One must watch closely for necrosis. There may be no clinical symptoms other than a severe pain which is relieved on puncture of the drum. Suddenly the discharge stops and the case seems about to clear up, then an elevation of temperature is noticed—99 F. in the afternoon, perhaps. From the beginning the roentgenograms show haziness and no tendency to clear. When operation is performed the entire cell structure is found to be necrotic. The absence of tenderness is due usually to the dense, hard, thick, outer table, but in some cases it may be elicited by deep pressure over the posterior aspect of the tip.

3. Cases occurring in systemic infections. The mastoid is invaded and becomes necrotic before any discomfort is noted by the patient. This seems to be a rash statement, yet operations have been performed in cases which presented this condition. The first symptom was a sudden, terrific headache. The drum appeared bulging but deep red. No pus escaped on puncture, and the opening closed rapidly. Roentgenograms in these cases showed extensive tip cell necrosis. On no basis other than blood stream invasion of the mastoid can this type of mastoiditis be explained.

BLOOD COUNTS AND CULTURES

The number of white cells in a series of fifty mastoid cases of all types averaged 13,300. That the white count depends on conditions other than the mastoiditis is evident. Too much emphasis cannot be placed on this test. Blood cultures are important when positive for the organism; therefore in cases of suspected system invasion, cultures should be obtained if possible.

HEADACHE

An important symptom is the headache occurring at any time during a mastoiditis. Headache suggests meningeal irritation. It is not always true that it points to so grave a complication, but whenever headache is constant one must consider the possibility at least of dural irritation. It is one of the first symptoms of meningitis. It is the one clinical symptom that, at no time during a mastoiditis, should ever be treated lightly.

MANAGEMENT OF INDIVIDUAL CASES

To class all mastoiditis cases in one group, and to operate only when the clinical symptoms are pronounced, is the tendency of most surgeons. The result of this procedure is uncertain. To advocate early operation in otitis media cases presenting mastoid tenderness is even less advisable. The ideal method would be to strike a happy medium—an impossible procedure. If one awaits the appearance of clinical symptoms of mastoiditis warranting operation, many cases will be so far advanced that destruction of bone, unsightly scars, and even death may result. If one operates too early, before bone necrosis occurs and resistance of the body to the infection is present, one submits the patient to unnecessary risk, the possibility of secondary operation because of bone infection and because of rapid absorption following operation.

There can be no set rule, for some cases require early and others late operation, depending on the circumstances connected with the individual case.

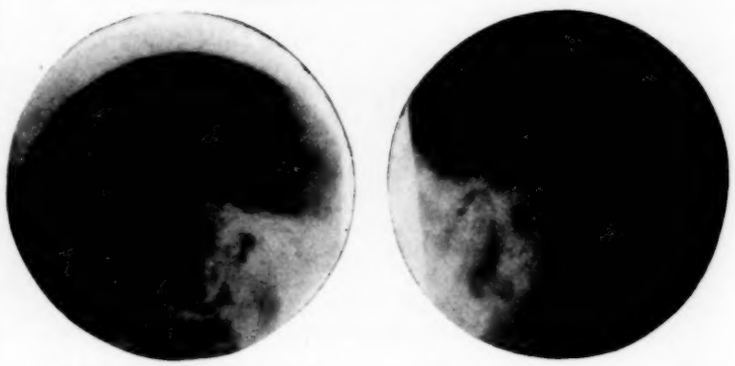

Fig. 4 (Type 2).—Necrosis of all posterior cells of right mastoid; outline of cells gone; verified at operation; hemolytic streptococcus.

The type of mastoiditis depends on two factors: (1) the anatomic arrangement of the mastoid cells, and (2) the character of the infection.

1. The first point was discussed under roentgenoscopy. Types 1, 2 and 3 are general types. Intermediate or overlapping cases are frequent, and so the types must be considered as relative rather than absolute—merely as a general rule for classification. An exception to this rule is found in those cases in which one side is normal, while the other side has a chronic otitis media resulting in sclerosis of the mastoid cells. These cases, however, are easily identified by taking a careful history.

2. The second point, the character of the infection, must be the determining factor in the majority of cases. But the factors to be considered are the condition of the patient, the organism present, and the degree of invasion. A patient who has had an acute infectious disease, such as measles or scarlet fever, or a prolonged illness, such as pneumonia, will develop suddenly bone necrosis. This constitutes the fulminating type of mastoiditis. Strong, robust individuals developing an otitis media following a cold or tonsillitis withstand a severe infection under ordinary circumstances. The streptococcus and the pneumonia

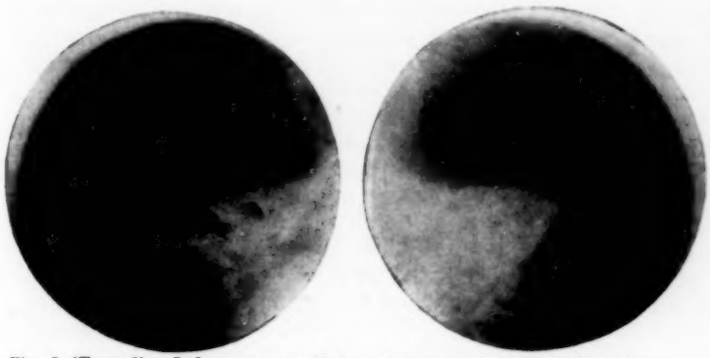

Fig. 5 (Type 3).—Influenzal mastoiditis; right mastoid shows delicate haze; no operation.

groups are by far the most serious organisms to deal with. The degree of invasion depends on the presence or absence of bone necrosis, and is the most difficult of all the problems to solve.

In a certain percentage of cases one may determine its presence by clinical symptoms—sudden appearance of the classical picture of mastoiditis. The problem is easily solved in these cases. But to wait for this classical picture is not always necessary, nor always safe. Many cases also will apparently subside and the patient will be discharged, only to have an irritable mastoid which will flare up on the first "bad cold." If sclerosis occurs, these patients later develop a chronic otitis media and become a nuisance both to themselves and to their associates.

An extensive study of many cases of acute mastoiditis has convinced us that the problem of bone necrosis can be solved by means of the roentgenogram, and when present, operative interference is imperative. The only exception to this rule is when blood stream invasion is known to have existed prior to the time of bone necrosis. In these cases one is justified in postponing the operation until the systemic infection subsides. This cannot always be done, and in such cases the prognosis is most grave.

THE OPERATION

Any operation that has for its subject the complete removal of the mastoid cells, drainage of the antrum, and the least possible trauma, is sufficient for the relief of mastoiditis. This means that sufficient bone must be removed to obtain access to all necrotic areas, even though it requires exposure of the sinus or dura.

AFTER-CARE

The quicker one obtains complete closure of the wound, the better for the patient. This does not mean permitting the cavity to fill with mushroom granulations. To obtain firm, clean granulations the use of chloramin-T paste is advised. General care of the patient should include rest, sufficient exercise, nourishing food, alkaline drinks, and repeated assurance that no ill effects will follow from the operation.

COMPLICATIONS

Two stages in the course of a mastoiditis case require one's attention, the diagnosis of bone necrosis and the diagnosis of complications. Many careful observers have spent hours in worry over whether to operate or to wait, only to have the case clear up or fulminate before decision has been reached. Who has not diagnosed a case as meningitis or sinus thrombosis only to find that a dose of calomel relieves all symptoms over night?

Facial Paralysis.—One does not have to worry over the diagnosis of a facial paralysis, and yet it is a great comfort to both the operator and the patient to state that it is only a paresis. One should never attempt to deceive oneself in regard to the cause of a facial accident. If the chisel slips, if the ridge is broken, if the curet is too sharp and cuts too deep and the face twitches in spasm, the result usually can be foretold and one need not hope just for a paresis. If, however, the staring eye, the smooth face, and the lifeless cheek appear on the second, third or fourth day, one may predict a paresis and assume a good prognosis. Massage, frequent dressings, and gradual exercise aid in recovery.

Sinus Thrombosis.—The classical symptoms of sinus thrombosis are too well known for much further discussion. In the absence of a fall in temperature or a sudden rise, the appearance of a swollen joint is not indicative of sinus trouble. Blood stream invasion by the organism may have preceded the onset of the mastoiditis and caused many so-called complications to mastoiditis, among them, arthritis.

Fig. 6 (Type 3).—Influenza; right mastoid shows slight haze; no operation; white shadows external to bony canal show edge of lateral sinus.

Parotitis.—This is a complication in mastoiditis that occurs frequently. It is usually caused by too much or too forceful attention to the canal. The infective agent, usually *Streptococcus viridans*, gains access to the parotid region by way of the openings in the cartilaginous canal. Prompt incision with a Graefe knife at the point of entrance (seen in the canal) will relieve the condition. Facial paresis may develop from this complication.

Erysipelas.—This may develop especially following streptococcus infection. It is severe on the patient but never proves fatal. Treatment aids in relieving the suffering, but not in hastening the recovery.

MENINGITIS

The most serious and heart-breaking condition that may present itself is the headache, stiff neck, malaise, and death from meningitis, the most dreaded of all complications and the least understood. In a series of necropsies in forty-one influenzal pneumonia cases, reported elsewhere, some interesting data were obtained. Later necropsies in three cases, diagnosed as meningitis occurring during mastoiditis convalescence, added to the knowledge obtained from the previous necropsies. From the forty-one necropsies it was found that meningitis was a frequent complication in pneumonia of the streptococcus and pneumococcus types; that in cases with and without mastoid involvement, the blood, pleural fluid, and spinal fluid gave positive cultures, especially when *Streptococcus hemolyticus* was the invading organism; and that edema of the brain, congestion of the cerebral vessels, and dilatation of the ventricles were associated with the pneumonia. This led to a more careful search for blood stream invasion in measles or pneumonia mastoiditis cases, especially when *Streptococcus hemolyticus* was the organism suspected. In three cases of measles mastoiditis resulting fatally, necropsy disclosed in the first a cerebellar abscess, in the second a diffuse meningitis (plastic) with frontal lobe abscess on the side of operation, and in the third a similar picture with the abscess of the frontal lobe on the opposite side. Cultures taken at necropsy showed *Streptococcus hemolyticus* in all tissues in each case. In none of these cases could any connection be found between the area of the operation and the meningitis.

The conclusion one must draw is that meningitis is not due to the mastoiditis but to the conditions present at the time of operation. For this reason a careful study of each case is essential: By gradual classification of the mode of onset, the type of mastoid structure, the character of the infection, and the degree of necrosis, together with a study of the blood invasion, a certain number of cases will be found that one may term dangerous. These cases are few in number but are usually fatal. The onset is slow, since they follow measles or pneumonia; they occur in mastoid Type 2; the source of infection is usually *Streptococcus hemolyticus;* bone necrosis occurs early and is extensive; the blood stream may show the presence of the organism; the brain may be congested, the cerebral vessels engorged and the ventricles dilated. Thus the groundwork has been laid for a meningitis. It requires only the trauma of the chisel or the anesthetic to complete the work. These are the problems that confront the surgeon.

CONCLUSIONS

1. The prevalence of mastoiditis in army cantonments is due to a number of reasons. The new surroundings of the recruit play some part in it and constitute a predisposing cause. The presence of a locality infection and epidemics of acute contagious diseases are the chief factors.

2. Invasion of the middle ear and mastoid cells may occur by extension from the nasopharnyx or directly from the blood stream.

3. The anatomic structure of the mastoid body is of importance in the prognosis of each case. Roentgenoscopy will alone determine the character of the cell arrangement.

4. For clinical purposes, mastoids may be classified as Type 1 (Figs. 1 and 2) rudimentary or cell-free mastoids; Type 2 (Figs. 3 and 4) in which the cells are of the pneumatic variety and are found only below a horizontal line drawn through the upper margin of the meatal ring, as shown in the roentgenogram, and Type 3 (Figs. 5 and 6), showing small cells extending forward in the zygomatic region, high posterior cells, and many delicate cells in the tip. Type 1 mastoids rarely if ever develop acute mastoiditis, but the otitis media is the most marked of all types. In this class of cases, operation reveals the sinus clinging closely to the posterior wall. Type 2 is the most serious of the three and almost always requires operation. The cells of the tip and posteriorly are of the pneumatic type. The drainage is poor, and necrosis occurs early and may be fulminating in character. Type 3 is characterized clinically by an early tenderness over the entire mastoid area which subsides on the application of hot compresses. They drain easily and seldom require operation. Mastoiditis is associated with otitis media in only Types 2 and 3. As Type 1 may be due to faulty development or to an otitis media in early childhood, a large number of mastoids of this type are found. This accounts for many severe otitis media cases that show no clinical evidence of mastoiditis, although a high temperature and even chills may occur.

5. Bone necrosis is the one important sign in mastoiditis which must be carefully sought. Its presence makes operation imperative. It occurs in Type 2 with little or no clinical manifestation until the tip and posterior cells become necrotic. Fulminating signs then appear. When operation is indicated, it should be thorough.

6. Chloramin-T paste is a good dressing to use in the after-care of patients.

7. Blood stream invasion may cause the mastoiditis, and with it involvement of structures within the cranium. In such cases, meningitis may be hastened by a prolonged operation. So-called otitis meningitis is a very rare complication. Septic joints, pericarditis, meningitis, or abscess of the brain due to the primary invasion may develop, early or late, in the course of the illness. Sinus thrombosis is easily differentiated by the presence of the chill and the rapid rise and fall of temperature.

Health in Cumberland.—In the annual report number of the Cumberland (Maryland) *Health Bulletin* (April, 1919), Max J. Colton, health officer, in an address to the "Veterans of the World War," takes them into the health organization of Cumberland by appointing them deputies to assist in carrying out at home the principles of hygiene which they were taught in the Army. He says: "You want yourselves and your families protected from as much disease as possible," which "is no more than is due every citizen of a community. You yourself can help to bring the protection home. You can urge the members of your family to be vaccinated and inoculated, you can become the sanitary inspector of your home, see that the privy vault is flytight, that the garbage can is kept covered. If some one you know has a venereal disease, see that he secures treatment from a reputable physician, or from the clinic which is being operated in the city hall, where treatment can be secured free of charge, that the quarantine regulations be observed wherever a communicable disease exists, and, in a word, appoint yourself a guardian of the community." Cumberland with a population of 27,298 in 1918 had 736 births, an increase of eighty-two over the previous year, and the largest number of births in the history of the city. This gave a birth rate of 26.96 per thousand of population. There were 114 stillbirths. The total number of deaths not including the influenza epidemic, accurate figures for which are not yet available, was 578, a rate of 21.17 per thousand.

DUODENECTOMY

A NEW METHOD *

JAMES J. MOORHEAD, M.D.
AND
HERBERT E. LANDES, A.B.
CHICAGO

During the course of some work on the nature of the toxemia in intestinal obstruction[1]—in which removal of varying lengths of the jejunum and the ileum produced no other effect than an easily explained nutritional disturbance—it was decided to take up later this problem: Is the duodenum one of the so-called vital organs, and if so, what is the nature of its vital function? Obviously, a successful duodenectomy would answer this question in part.

The duodenum—discovered and named by Herophilus—developed embryologically from the foregut, with its outbuds, the liver and the pancreas, is a most important part of the digestive system.

Anatomically, the duodenum in the dog, unlike that in man, is of the fetal type—mobile, and almost completely covered with peritoneum. Intimately connected to its medial border is the body of the pancreas. Its blood supply comes chiefly from the pancreaticoduodenal artery. The nerve supply is composed of extrinsic nerves of parasympathetic origin carried in the vagi, and nerves of sympathetic origin coursing in the splanchnics. The intrinsic nerves are the plexuses of Auerbach and Meissner. Compared with the remaining portion of the small intestine, the wall of the duodenum is thicker and more muscular and its lumen larger. The histologic structure of the duodenum of the dog, like that of man, is characterized by the presence of the large tubuloracemose glands of Brunner which occupy the submucosa.

Physiologically, the duodenum is the recipient of the chyme, the bile and the pancreatic juice. From its mucous membrane is secreted an enzyme, enterokinase, on which the pancreatic juice is dependent for its activation. Like the remainder of the intestine, it is an organ of absorption, secretion and excretion.

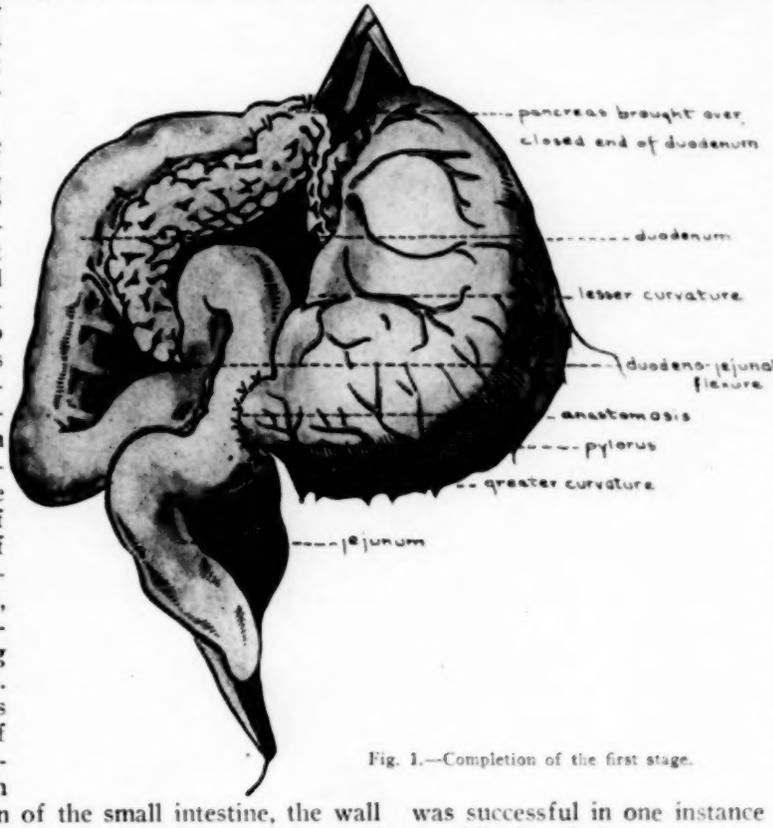

Fig. 1.—Completion of the first stage.

PREVIOUS WORK

Pflüger[2] concluded from work on the frog that diabetes followed injury to the nervous connections between the pancreas and the duodenum in attempts to extirpate the latter. Subsequent work on the duodenum of the dog reported in the foreign literature by Minkowski,[3] Rosenberg,[4] Ehrmann,[5] Lauwens[6] and Bickel[7] rendered this theory untenable.

Minkowski removed the splenic portion of the pancreas and anastomosed the jejunum to the posterior surface of the stomach. Subsequently the common bile duct and the pancreatic duct were ligated and divided and the gallbladder anastomosed to the jejunum. The pylorus was cut through and both ends closed. The duodenum, including the pancreas, except the uncinate process, was extirpated. One dog lived three weeks without becoming diabetic. This was the first successful duodenectomy.

Rosenberg, Ehrmann, Lauwens and Bickel report methods varying somewhat from the preceding, but having the same end in view.

The American investigators Matthews,[8] C. A. and L. R. Dragstedt, McClintock and Chase,[9] and Grey[10] have worked on the problem of duodenectomy.

Matthews concluded from his experiments that extirpation of the duodenum was incompatible with life longer than seventy-two hours.

C. A. and L. R. Dragstedt, McClintock and Chase of Iowa City had one dog live three months following duodenectomy. In this animal the bile was drained to the outside by a gallbladder fistula, and the body of the pancreas removed.

Grey of Baltimore was successful in one instance in which he preserved the bile by cholecystenterostomy and the pancreatic juice by transplantation of the pancreatic duct into the jejunum. The dog lived eight and one-half months.

Only a few attempts at such an operation were necessary to convince us that extirpation of the duodenum was attended with many difficulties not encountered in resection of other portions of the alimentary tract. Such difficulties gave rise probably to the supposed vital function of the duodenum.

* From Hull Physiological Laboratory, University of Chicago. To Rollin H. Moser and Daniel W. Wheeler we extend thanks for helpful suggestions and actual cooperation and to Albert E. Welch for preparing the illustrations.

1. Dragstedt, L. R.; Moorhead, J. J., and Burcky, F. W.: Intestinal Obstruction: An Experimental Study of the Intoxication in Closed Intestinal Loops, J. Exper. M. **25**: 421, 1917.
2. Pflüger: Arch. f. d. ges. Physiol. **118**: 267, 1907.
3. Minkowski: Arch. f. exper. Path. **58**: 271, 1908.
4. Rosenberg: Arch. f. d. ges. Physiol. **121**: 358, 1908.
5. Ehrmann: Arch. f. d. ges. Physiol. **119**: 295, 1907.
6. Lauwens: Arch. f. d. ges. Physiol. **120**: 623, 1907.
7. Bickel: Berl. klin. Wchnschr., 1909, XLVI, 1201.
8. Matthews, S. A.: One of the Functions of the Duodenum, J. A. M. A. **55**: 293 (July 23) 1910.
9. Dragstedt, C. A.; Dragstedt, L. R.; McClintock, J. T., and Chase, C. S.: Am. J. Physiol. **46**: 584 (Aug.) 1918.
10. Grey, E. G.: Surg., Gynec. & Obst. **28**: 36 (Jan.) 1918.

The variety of methods found in a survey of the literature suggested the technical obstacles encountered in duodenectomy. After repeated attempts, extending over a period of several years, we have devised

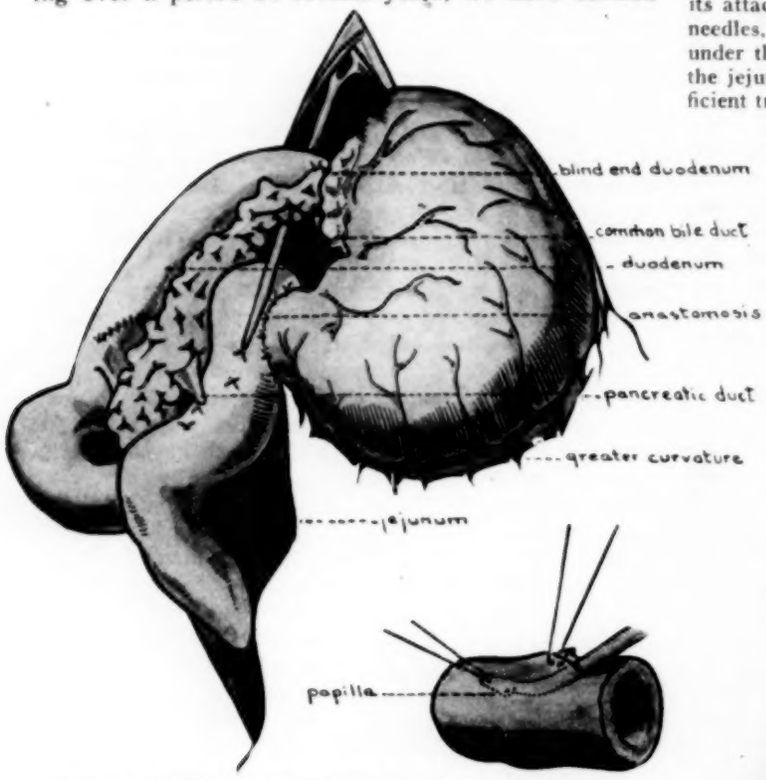

Fig. 2.—Transplantation of common bile duct and major pancreatic duct.

a method which has been attended with some success.

AUTHORS' METHOD

The operation is done in three stages:

1. The abdomen is opened through an incision 10 cm. in length starting midway between the ensiform cartilage and the right costal margin; the rectus muscle is displaced outward; the left index finger locates the hepatopyloric ligament, which is cut, and the finger is passed downward behind the pylorus; the greater omentum is drawn to the left and an opening made through an avascular space in the dorsal mesentery close to the edge of the pancreas; rubber-covered clamps are applied on each side of the pylorus and four ligatures tied (two above and two below); the pylorus is divided on a Kocher director.

The gastric end, which is covered with a warm pad, is laid aside. The mucosa of the duodenal end is dissected from the muscularis for a distance of about 3 cm., and this isolated portion removed. The serosa and the muscularis are infolded so that a portion of the pancreas covers the blind end. The transverse colon is located and drawn outward, carrying with it the first loop of the jejunum. This is brought up in front of the colon and anastomosed to the open pyloric end of the stomach, the proximal part of the bowel at the lesser curvature (Fig. 1). The abdomen is closed. A subcuticular stitch apposes the skin. No dressing is employed. Buttonhole silk is used exclusively in our work.

2. Two weeks later an incision similar to that described above opens the peritoneal cavity. The duodenum is picked up, and the common bile duct identified and excised from the duodenal wall. The mucosa of the excised portion is completely removed. The opening made is closed by Lembert sutures. Wirsung's duct, which is the accessory duct in the dog, is ligated and divided. The gastrojejunostomy is located and a small opening made in the jejunum about 3 cm. distal to the junction. The common bile duct with its attached duodenal wall, held by a thread armed with two needles, is drawn through an opening in the dorsal mesentery under the duodenum. These two needles are introduced into the jejunal opening, and emerge about 2.5 cm. distally. Sufficient traction is applied to draw the duct through the orifice, and the threads are tied on the serosa. One Lembert suture is used to effect closure around the duct.

The duct of Santorini is now found. Its usual location in the dog is at a point about 3 cm. proximal to the place where the pancreas turns away from the duodenum. This duct is transplanted by the same technic as is the common bile duct, about 5 cm. distal to the implantation of the common duct (Fig. 2). The omentum is carefully arranged and the abdomen closed.

3. Following an interval of fourteen days, the abdomen is opened for the third time through the right rectus abdominis. Multiple adhesions are commonly found. The blind duodenal end is sought and liberated sufficiently to allow its being brought to an accessible position. The bowel is opened longitudinally along the surface opposite the pancreas for a distance of about 8 cm. Long hysterectomy clamps are applied parallel to and about 2 cm. from the cut edge. With a sharp uterine curet the mucosa is completely removed. The wall is now divided immediately below the clamps and the remaining edges

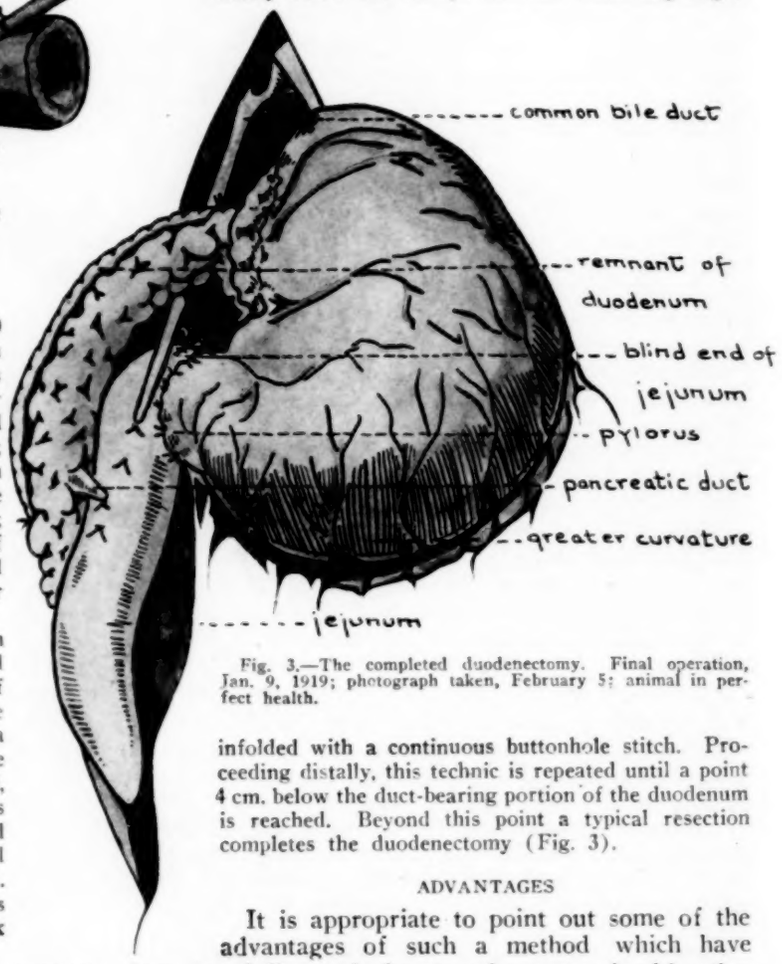

Fig. 3.—The completed duodenectomy. Final operation, Jan. 9, 1919; photograph taken, February 5; animal in perfect health.

infolded with a continuous buttonhole stitch. Proceeding distally, this technic is repeated until a point 4 cm. below the duct-bearing portion of the duodenum is reached. Beyond this point a typical resection completes the duodenectomy (Fig. 3).

ADVANTAGES

It is appropriate to point out some of the advantages of such a method which have been carefully worked out and compared with other procedures.

The gastro-enterostomy described in the first stage is superior to the usual operations because the junction is made at the true physiologic location, the

pylorus. This region is undisturbed in the subsequent steps.

By our technic the biliary and pancreatic secretions are preserved. The jejunum is made to serve as a substitute for the duodenum in receiving the digestive juices. In a review of the literature we were unable to find a single instance in which both the common bile duct and the pancreatic duct had been successfully transplanted into the jejunum at one time. Cholecystenterostomy in the dog is frequently fatal. Cholecystogastrostomy disregards well established principles of digestion.

In our opinion the usual technic of intestinal resection cannot be applied to the duct-bearing portion of the duodenum. The final stage, as described, disturbs neither the pancreas nor the functioning alimentary tract, thus reducing to a minimum the after-effects of a severe operation.

CONCLUSIONS

1. The method described permits the complete removal of the duodenum in consecutive operations: (*a*) pylorectomy, closure of the duodenal end, and gastrojejunostomy; (*b*) transplantation of the common bile duct and the major pancreatic duct into the jejunum; (*c*) removal of the duodenum.

2. Dogs thus operated on will live in a normal state of health. The duodenum, therefore, is not essential to life.

ANTHRAX IN A SOLDIER

REPORT OF A FATAL CASE PROBABLY DUE TO INFECTION BY A SHAVING BRUSH *

WILLEY H. NORTON, M.D.
Captain, M. C., U. S. Army; Chief of Laboratory
AND
EDWARD F. KOHMAN, PH.D.
First Lieutenant, Sanitary Corps, U. S. Army
CAMP JACKSON, COLUMBIA, S. C.

This is the third case of human anthrax at Camp Jackson in the past four months, the first two cases having been reported by Schultz.[1] In this case anthrax bacilli were isolated from a shaving brush made of badger's or of an imitation of badger's hair, and recently purchased by the patient. The case is thought worthy of record because of the interesting pathology, especially the presence of intestinal carbuncles, which are usually associated with infection by the intestinal route, and the complete bacteriologic and chemical findings.

REPORT OF CASE

History.—Private J. B., white, aged 21, was admitted to the base hospital of Camp Jackson, Nov. 21, 1918, complaining of slight headache, dizziness and backache. The previous medical history was negative. The patient was well nourished. He was not acutely ill, having on the neck above the thyroid cartilage an inconspicuous swelling without inflammatory areola, about 1 cm. in diameter, which according to the patient followed several days after the use of a new shaving brush. The latter was purchased for $1, and was said by the manufacturer to be sterile.

On admission the temperature was 100.2, pulse 96 and respiration 20. The leukocyte count was 11,200, of which 83 per cent. were neutrophils, 13 per cent. small mononuclears and 4 per cent. large mononuclears. The leukocyte count on the second day after admission was 24,000, of which 84 per cent. were neutrophils, 3 per cent. small mononuclears, 10 per cent. large mononuclears and 3 per cent. transitionals. On the same day a specimen of urine was positive for acetone, bile acids and bile pigments, and negative for diacetic acid. On the evening of the same day, the red cell count was 3,400,000. The leukocyte count was 31,000, of which 81 per cent. were neutrophils, 17 per cent. small mononuclears and 2 per cent. large mononuclears. The hemoglobin was 100 per cent. The blood at that time was dark and thick.

On the morning of November 23, three days after admission, the patient became nauseated and vomited a grumose material. The vomiting continued and was accompanied by severe epigastric pain. He shortly developed a cyanotic pallor and signs of circulatory collapse. The pulse was not obtained at the wrist, and the heart sounds were barely audible with the stethoscope. The respirations were irregular, somewhat rapid, and occasionally deep and sighing, suggestive of air-hunger. The lungs were clear. The abdomen was distended, tympanitic, and tender on palpation in the epigastrium. The spleen and liver were just palpable. The pupils reacted to light and accommodation. Rigidity of the neck, and the Kernig and Brudzinski signs were absent. Oppenheim's reflex was present on both sides. All the other reflexes were normal. The swelling on the neck had assumed the appearance of a granuloma, and the superficial chain of lymph glands along the anterior border of the right sternocleidomastoid muscle was enlarged. There was slight diffuse swelling over the area outlined by the right sternocleidomastoid muscle. Around the granuloma was noted what was suggestive of a margin of dry vesicles. The center of the lesion showed beginning black necrotic change. There was no pain nor tenderness about the lesion. A smear which was made from a freshly abraded surface showed organisms having the morphologic characteristics of the anthrax bacillus. The blood that exuded from the abraded surface turned black immediately.

The vomitus was positive for blood. Carbon dioxid determination of the blood plasma gave 43.8 per cent. by the method of Van Slyck and Cullen. At 2 p. m. a diagnosis of anthrax was reasonably established, and the patient was given intravenously 160 c.c. of antianthrax serum. No improvement occurred, and to counteract the acidosis determined to be present, 750 c.c. of a 4 per cent. sodium bicarbonate solution were given intravenously. The patient did not react but became progressively worse and died at 8:30 p. m., November 23.

Bacteriologic Examinations.—Shortly before noon, November 23, a smear made from the blood taken from the granuloma showed abundant, large gram-positive capsulated bacilli. In a hanging drop these grew into long filaments in less than an hour, showing the organism to be an aerobe. On blood-agar plates these bacilli developed into characteristic anthrax colonies. A smear from the lesion also showed cocci, which on plates proved to be *Staphylococcus aureus.* Three mice were inoculated, one subcutaneously and two intraperitoneally, with blood from the lesion. All three died within less than twenty-six hours. At necropsy all had numerous anthrax bacilli in the spleen, kidney, and heart's blood. Cultures from these organs all gave characteristic anthrax colonies. At the same time, November 23, two blood cultures taken from the patient—one in the morning and one in the afternoon—were positive for anthrax bacilli. At the time the latter was taken a plate was also made with the blood from the arm, and this gave approximately seventy colonies per cubic centimeter of blood.

Pathologic Examination.—This was made twelve hours after death. Extending from the granuloma on the neck beneath the sternum into the mediastinal tissues there was considerable edema of the tissues, which had a yellowish and gelatinous appearance. This edema to a lesser degree extended upward from the lesion along the right sternocleidomastoid muscle. There were 150 c.c. of dark yellowish fluid in the abdominal cavity. The pleural cavities were free from adhesions or fluid. The heart was normal. Beneath the pleura of both lungs there were numerous petechial hemorrhages, especially marked posteriorly and between the lobes. Both lungs

* From the base hospital laboratory.
1. Schultz, O. E.: Two Cases of Human Antrax at Camp Jackson, J. A. M. A. 71: 1571 (Nov.) 1918.

were markedly congested, although no indication of consolidation was present. There was one small hemorrhage found in the liver beneath the capsule, 4 mm. in diameter. The spleen measured 12 by 14 by 2.5 cm. and was soft. The capsule was smooth, bluish, and free from adhesions. The tissue on section was red and pulpy. The congestion was so marked as to obscure the malpighian bodies. The stomach was filled with a dark coffee-ground material. The gastric mucosa was everywhere congested, but no hemorrhagic areas were noted. The omentum and mesentery were greatly thickened by a gelatinous condition of the tissues. The mesenteric lymph glands were enlarged and intensely hemorrhagic. There were five places in the ileum and two places in the descending colon which were red and edematous in appearance and approximately 6 cm. in diameter. Viewed from the mucosa surface these areas presented dilated vessels, at times accompanied by hemorrhage in stellate arrangement, the center of which was gray and nodular, the whole underlying the mucosa, except that in one place the central nodule was ulcerated. Smears from these nodules showed many bacilli. Otherwise, the intestinal walls appeared normal. There was no generalized hyperemia, nor were Peyer's patches conspicuous. The contents of the intestine were of interest. Normal light-brown feces in moderate quantity were found in the entire colon. Above the cecum for some distance, however, the contents were black and pasty. In the upper ileum, brown, normal fecal matter again was found. Above this again in the duodenum and upper jejunum there was found much black, tarry material. Cultures made from the heart's blood gave a pure culture of anthrax bacilli. Cultures from the spleen showed a few anthrax colonies.

Fig. 1.—Intestinal carbuncle (Gram-Weigert stain); × 450.

Microscopic Examination.—The subcutaneous tissues were swollen and the tissue substance filled with a granular, eosin-stained, structureless material in which there was some fibrin. There was marked infiltration with polymorphonuclear leukocytes. The lungs showed the alveolar walls engorged with blood, oftentimes obliterating the alveoli, and in a few places the alveolar walls had ruptured, allowing the alveoli to be filled with red blood cells and a few white cells. The liver, kidneys and suprarenals showed parenchymatous degeneration. The hemorrhagic nodules found in the colon and ileum showed the intestinal wall densely infiltrated with red cells, fibrin and serum. The nuclear elements in these areas no longer took the hematoxylin stain. Numerous large gram-positive bacilli were demonstrated in the subcutaneous tissue, the mesenteric glands and the intestinal nodules by the Gram-Weigert method. A few scattering bacilli were found in the capillaries of the lungs, liver, kidneys and spleen.

Examination of Shaving Brush.—The bristles of the shaving brush recently purchased and used by this patient were washed in about 20 c.c. of physiologic sodium chlorid solution. This washing was centrifuged and the supernatant fluid decanted off and discarded. Fresh physiologic sodium chlorid solution was added to the sediment, and the operation repeated in order to free the sediment from soap. Smears of this sediment showed numerous bacilli but no typical anthrax bacilli. Inoculations of the sediment were made intraperitoneally into a guinea-pig and two mice. In the case of one mouse the inoculating material was first heated at 75 C. for two minutes, in order to reduce the number of organisms other than spores of anthrax. Both animals that received the unheated material died within about twenty-four hours. At necropsy neither showed anthrax bacilli either microscopically or culturally. The mouse receiving the heated material died about three hours later than the other two animals. Microscopic examination of the kidney tissue and of the heart's blood showed large gram-positive bacilli very similar to the anthrax bacillus. Cultures from the kidney showed a large gram-positive bacillus, the colonies of which were not anthrax-like. Inoculations from kidney or liver pulp made subcutaneously into a second mouse did not infect it. A second washing of the brush was made and a washed sediment obtained in a manner similar to that described above. All of this sediment was heated for two minutes at 75 C. Two mice were inoculated subcutaneously at the root of the tail with this sediment. One mouse died within forty-eight hours. Pure cultures of a gram-negative bacillus were obtained on culturing the organs of this mouse. The other mouse died after about seventy-two hours. Smears from the spleen, kidneys, and heart's blood of this mouse showed large gram-positive bacilli, morphologically *B. anthracis*. In a hanging drop this grew into long filaments within an hour. A plate made from the spleen pulp gave anthrax-like colonies, as well as numerous colonies of a comparatively small gram-negative bacillus. The heart's blood on a blood-agar slant

Fig. 2.—Skin carbuncle (Gram-Weigert stain); × 1,000.

gave a few anthrax colonies in pure culture. Material from an anthrax-like colony developed on the place cultivated from the spleen of this mouse was inoculated into another mouse subcutaneously at the root of the tail. This mouse died within twenty-four hours. Numerous bacilli were found in smears of all the organs. These were capsulated and had all the marks characteristic of the anthrax bacillus. Inoculations from the heart's blood, spleen, and kidney on blood-agar gave characteristic anthrax colonies in pure culture. Plates made directly from the heated and washed sediment obtained from the second washing of the shaving brush gave characteristic anthrax colonies mixed with those of numerous other bacteria. The morphology of the organisms of the anthrax-like colonies was typical of that of the anthrax bacillus.

CONCLUSIONS

1. An organism definitely shown to be the anthrax bacillus was found on a new shaving brush, the use of which was followed by a fatal infection. In all probability this brush was the source of the infection. Attention is, however, called to the possibility of the shaving brush being infected by the granuloma on the patient's neck.

2. The clinical course of the disease was such that the diagnosis could not have been made without the laboratory examinations.

3. Intestinal carbuncles may be formed by a blood-stream infection as well as by the alimentary route. Of course, there is a possibility of the anthrax bacilli having gained entrance to the mouth at the time of shaving. However, the intestinal lesions were all, except one, covered by intact mucosa. Attention is called to the fact that these were all recent lesions in the intestine. It appears that there is a definite tendency for anthrax infections to localize in the intestine no matter whether the infection takes place by the blood stream through the skin or the intestinal route.

DESIRABILITY OF CHANGING THE TYPE OF WRITTEN EXAMINATIONS *

GEORGE BLUMER, M.D.
NEW HAVEN, CONN.

The purpose of medical education is not to produce walking encyclopedias of medical knowledge. While the acquisition of the rudiments of medical knowledge is a part of medical education and a somewhat important part, it is nevertheless true that the sum of medical knowledge is so vast that even were it desirable to attempt to teach it, it is not possible for any single human intellect to digest and retain it. Much more important in medical education than the acquisition of mere knowledge is the development of certain specific qualities and habits of thought, the summation of which may be described as the scientific habit of mind.

There is doubtless room for some difference of opinion as to the relative importance of the different mental qualities and attainments that are most desirable in a student of medicine. It is probable, however, that there is tolerably substantial agreement among medical educators as to what these qualities and attainments are. A student of any science must be acquainted with the technical language of that science. He should be able to spell that language correctly and he should possess sufficient mental clarity to enable him to express his views regarding a technical subject in clear and intelligible language. As he must absorb his knowledge from lectures, books and magazines, he should possess a critical faculty, and should be able to separate the wheat from the chaff. He should be able to interpret the various forms of graphic presentation that are used in medical science and practice, such as pulse tracings, physiologic tracings, statistical tables, temperature charts, and the like. He should be able to present his own ideas in graphic form when they relate to subjects capable of being expressed in that way. He should be able to gather facts, and he should be able to reason from facts. He should possess trained powers of observation, he should be able to concentrate on the work in hand, and he should possess the ability to put through any work assigned to him. He should possess health and vitality, and he should know how to keep these necessary attributes.

No one will deny the necessity of submitting the medical student and the recent medical graduate to definite tests in order to permit the university authorities, in the one case, or the state boards of examiners, in the other, to determine their fitness to practice medicine. It does not suffice for the universities or examining boards to lay down a certain course of study that must be pursued in order to graduate and obtain the right to practice. It is essential that the candidate who desires to apply his knowledge to the actual treatment of patients should prove that he or she has mastered to a sufficient degree the principles that underlie the science and art of medicine. Without the safeguard of licensing examinations, the public would be even less well protected than it is at present from fradulent practitioners and the half-baked followers of half-faked cults.

Assuming, then, that there is general agreement that tests of fitness are a necessity in connection with the practice of a profession like medicine, the question arises whether the present methods of testing fitness cannot be improved on. It may be pointed out, in the first place, that the tests applied by the medical schools are usually not the same as the tests applied by the state examining boards. The main distinction lies in the fact that the medical school takes cognizance of the daily work of the student. So far as I know, no state board of examiners pays any attention to this record. In the second place, the number of state boards that give practical examinations is much smaller than it ought to be. In the majority of instances the type of test on which ability to practice medicine is based is the written examination, and it is the written examination that this discussion mainly concerns.

TESTS OF MEMORY

As at present framed, most written examinations are tests of the ability of the individuals taking them to absorb and retain large quantities of knowledge for a brief period. In other words, they are memory tests. As a result of this it is perfectly possible for an individual with a retentive memory who has graduated from an inferior medical school to pass a brilliant examination. Indeed, it is an actual fact that there have been in the past graduates of schools which were practically quiz-compend institutions who were eminently successful in passing state board examinations and obtaining licenses to practice. While the great improvements in medical colleges in recent years renders this situation no longer likely to occur, it is never-

* Read before the Annual Congress on Medical Education and Licensure, Chicago, March 4, 1919.

theless still true that most state board examinations put a premium on the individual with a retentive memory and an almost bovine aptitude for regurgitation.

A TEST OF DESIRABLE QUALITIES

The purpose of this communication is to suggest a new type of written examination which will test certain of the qualities that are desirable in medical students and medical practitioners, as well as testing their knowledge. In thinking over the list of desirable qualities mentioned in the early part of the paper, it is clear that not all of them can be tested by a written examination. Some of them must be tested by practical examinations, and can be tested only in that way. This is true particularly of the power of observation and the ability to put through various laboratory tests. There remain, after excluding the qualities that can be tested only in a practical way, certain qualities that can be tested in a written examination. These are:

1. Knowledge of the technical language of medicine.
2. Ability to express ideas graphically.
3. Ability to interpret ideas presented in graphic form.
4. Critical ability.
5. Ability to reason from facts.
6. Ability to present a subject in clear language.

METHOD OF APPLYING TESTS

The method of applying these different tests may be briefly described in order to indicate the practicability of such a written examination:

1. The test of ability to understand the technical language of medicine is obvious. It consists in presenting the student with a list of technical medical terms, beginning with easy terms and ending with the most difficult and requiring the student to define them.

2. The test of the student's ability to express ideas graphically may be illustrated by the following question recently asked in an examination of this sort:

> Draw a diagram illustrating the relationship existing between diseases of the bile passages and diseases of the pancreas. Letter and legend the diagram so as to convey your ideas.

3. The question covering the ability to interpret ideas graphically presented would vary in form according to the subject of the examination. In the case of a clinical subject, a record like a temperature chart could be presented with the request that the student describe and interpret the chart.

4. The test of critical ability consists in presenting to the student a brief quotation from some magazine article, preferably a quotation that contains both truth and fallacy. In this way the student is put in a position in which he must pass judgment on the validity of the statement. It is interesting to note in practice how quickly the individual whose tendency is to hedge can be separated from the students who have real critical ability.

5. The ability to reason from facts is one that is, of course, constantly used both in laboratory and in clinical work, and can best be tested by a method allied to that popularized by Cabot under the name of "case teaching." The student is presented with a history of an actual case, together with the more important clinical and laboratory findings, and is requested to draw his conclusions as to the nature of the case, giving his reasons.

6. Ability to present his ideas in clear language can be judged by a careful reading of the replies to the preceding questions. It is not necessary, of course, to have a special question for this purpose. Ability to spell correctly should perhaps be included as part of the test.

RATING OF QUALITIES

It goes without saying that the different qualities tested in this examination are not all of equal importance and should not all be rated equally. The rating that I have tentatively adopted is as follows:

Knowledge of the technical language, 10 points.
Ability to present ideas graphically, 10 points.
Ability to interpret ideas presented graphically, 10 points.
Ability to write clear English, 10 points.
Critical ability, 30 points.
Ability to reason from facts, 30 points.

The preparation of an examination of this kind, of course, requires more care and involves more expenditure of time than the preparation of the ordinary type of written examination. Any average practitioner can sit down with a textbook and prepare an examination of the ordinary type in a very short time. The extra expenditure of time is, however, compensated for by the much more satisfactory results obtained by the quality tests.

It is very interesting to observe the effect of such an examination on the rating of the students in a given class, as contrasted with the ratings under the old type of examination. The results at once make clear why it is that some men who, during their student career, do not appear to possess more than average ability, during their career as practitioners achieve a degree of success much greater than their teachers expected. A test of this sort shows that some of the most brilliant parrots in a class possess no critical faculty, and that their power of reasoning from facts may be decidedly mediocre. On the other hand, a man who has little capacity for memorizing may in an examination of this sort prove to have excellent critical faculty and a logical mind capable of drawing correct conclusions from the facts presented.

It may be pointed out that this type of examination is applicable to any subject. Each subject has, of course, its own technical languarge in addition to the common language of medicine. Each subject has aspects that can be graphically presented. The literature of each subject must of necessity be subjected to critical analysis, and the facts in connection with each subject must be interpreted after they have been elicited.

CONCLUSION

It is freely acknowledged that the ideas contained in this paper are not original. This is merely an attempt to work out a practical method along lines which have been suggested by the psychologists and have actually been in use in technical schools. Nor is it claimed that the plan suggested is anything more than a beginning. It is quite possible that I have entirely overlooked certain qualities that might be tested in this way, and it is more than likely that the method can be brought to a much higher degree of perfection. My main purpose in this paper is to emphasize the fact that no one kind of test is sufficient to provide a fair basis for the graduation or licensing of physicians, that the daily work of the individual should be taken into account even by state boards of examiners, that practical examinations are absolutely essential, and that the present type of written examination puts a premium on a type of mind that is not

particularly desirable in medicine, and is a test of memory rather than a test of desirable qualities. Actual experience with the type of written examination suggested shows that the plan is entirely feasible and that it fulfils the purposes for which it was designed.

PRIMARY AND POSTINFLUENZAL PNEUMONIA

A COMPARISON OF THE LABORATORY FINDINGS

FREDERICK H. LAMB, M.D.
Captain, M. C., U. S. Army; Chief of Laboratory Service, Base Hospital
CAMP CODY, DEMING, N. M.

This report is based on the laboratory findings, tabulated in summarized form, of two series of pneumonia cases occurring in the base hospital at Camp Cody. One series consists of 178 cases of primary[1] pneumonia admitted between May 1 and Oct. 1, 1918.

TABLE 1.—MORBIDITY AND MORTALITY INCIDENCE

Primary Pneumonia	Postinfluenzal Pneumonia
Period of time: May 1 to Oct. 1, 1918 (5 months).	Oct. 1 to Dec. 1, 1918 (2 months)
Number of cases: 178 cases, of which 7 were postoperative, 2 posttraumatic.	624 cases developing out of 3,265 influenzas.
Clinical diagnosis: Lobar pneumonia, 123 cases; bronchopneumonia, 55 cases.	624 cases, all diagnosed bronchopneumonia, postinfluenzal.
Mortality: 20 deaths; 11.23%.	240 deaths; 38.4%.
Approximate number of troops in camp: May 1 to June 1, 1918, 21,000... June 1 to July 1, 1918, 27,000.. July 1 to Sept. 1, 1918, 32,000... Sept. 1 to Oct. 1, 1918, 5,000...	Oct. 1 to Nov. 1, 1918, 4,500. Nov. 1 to Dec. 1, 1918, 10,000.

TABLE 2.—COMPLICATIONS IN WHICH BACTERIOLOGIC INVESTIGATIONS WERE MADE

Primary Pneumonia	Cases	Pr. Ct.	Postinfluenzal Pneumonia	Cases	Pr. Ct.
Empyema: Incidence: 12 empyemas out of 178 pneumonias 6.8%			Incidence: 65 empyemas out of 624 pneumonias 10.4%		
Bacteriology of 12 exudates.			Bacteriology of 60 exudates.		
Pneumococcus	2*	16.6*	Pneumococcus	25*	41.1*
Type I	2	...	Type II atypical....	12	...
			Type III.....	2	...
			Type IV	11	...
Streptococcus	10*	83.3*	Streptococcus	23*	38.3*
Hemolytic	7	...	Hemolytic	4	...
Nonhemolytic	3	...	Nonhemolytic	19	...
			Mixed	12*	20.0*
			Strepto. hem. and Pneum. III.....	3	...
			Strepto nonhem. and Pneum.	7	...
			Strepto. hem. and Pneum. IV.....	2	...
Meningitis: Incidence: 1 case out of 178 pneumonias 0.6%			Incidence: 7 cases out of 624 pneumonias 1.1%		
Bacteriology			Bacteriology.		
	Cases	Pr. Ct.		Cases	Pr. Ct.
Pneumococcus:			Pneumococcus	6*	85.7*
Type I	1	100.00	Type II atypical....	3	...
			Type III.....	1	...
			Type IV	2	...
			Streptococcus:		
			Hemolytic	1	14.3

* Subtotals.

The other consists of 624 cases of postinfluenzal pneumonia occurring between Oct. 1 and Dec. 1, 1918.

In order to present the comparison more clearly, the summarized findings of the two series of cases will be placed side by side. On the left hand will appear data pertaining to the primary pneumonias, while on the right hand, and directly opposite, will appear data of the same character applying to the postinfluenzal pneumonias. The figures given in the accompanying tables are derived almost entirely from daily laboratory records. No effort is made to coordinate the laboratory and the clinical features. In fact, the primary object of this report is to present a brief, concise comparison of the results of certain common laboratory investigations in two series of cases.

TABLE 3.—BLOOD EXAMINATIONS

Primary Pneumonia	Cases	Pr. Ct.	Postinfluenzal Pneumonia	Cases	Pr. Ct.
Blood cultures: Number of cultures 164			Number of cultures 248		
Organisms recovered in 34 cases 20.7%			Organisms recovered in 4 cases 1.6%		
Pneumococcus	30*	89.0*	Pneumococcus	3*	1.2*
Type I	19	...	Type I	1	...
Type II	2	...	Type II	1	...
Type II atypical ..	1	...	Type II atypical....	1	...
Type III	1	...			
Type IV	4	...			
Types I and II.....	1	...			
Types I and II atypical	1	...			
Types II and III....	1	...			
Streptococcus	4*	11.0*	Streptococcus	1*	0.4*
Hemolytic	2	...	Hemolytic	1	...
Nonhemolytic	2	...			
Leukocyte counts: Average leukocyte count in 176 cases 21,830			Average leukocyte count in 350 cases 9,480		
	Cases	Pr. Ct.		Cases	Pr. Ct.
8,000 or under.....	6	3.4	8,000 or under.....	203	58.0
8,000 to 12,000.....	12	6.8	8,000 to 12,000.....	53	15.1
12,000 to 25,000.....	90	51.1	12,000 to 25,000.....	82	23.5
Over 25,000	68	38.7	Over 25,000	12	3.4

* Subtotals.

TABLE 4.—SPUTUM EXAMINATIONS

Primary Pneumonia	Cases	Pr. Ct.	Postinfluenzal Pneumonia	Cases	Pr. Ct.
Sputums: Number of sputum examinations, 204 (in total of 156 cases).			Number of sputum examinations, 365 (in total of 340 cases).		
Pneumococcus	104*	66.7*	Pneumococcus	216*	62.0*
Type I	43	27.6	Type I	9	2.6
Type II	21	13.5	Type II	7	2.0
Type II atypical....	10	6.4	Type II atypical....	24	6.9
Type III	8	5.1	Type III	14	4.0
Type IV	22	14.1	Type IV	162	46.5
Streptococcus	27*	17.2*	Streptococcus	91*	26.0*
Hemolytic	22	14.1	Hemolytic	37	10.6
Nonhemolyfic	5	3.1	Nonhemolytic	54	15.4
Mixed	25*	16.1*	Reports unsatisfactory for classification.....	41*	11.8*
Type I and Strept. hem.	7	4.5			
Type II and Strept. hem.	4	2.5			
Type III and Strept. hem.	1	0.6			
Type IV and Strept. hem.	13	8.5			

* Subtotals.

It may be stated, by way of explanation, that the laboratory personnel and the technical methods employed during the seven months in which these studies were in progress remained practically the same throughout. Whatever technical errors have been made are proportionately common in both series. For the sake of efficiency in the laboratory, and of conformity in results, the examinations were carried out in a routine manner. Blank outlines indicating the data desirable for each kind of specimen were filled out as the examination of the specimen progressed.

The actual technic of the laboratory investigations has become too well known and standardized, I believe, to require a detailed description here. In general, the sputum "typings" were carried out according to the methods of Cole, Dochez and Avery. Avery's pneumococcus culture medium and his mouse inoculations were both used in the typing of practically all sputums and exudates. By means of blood agar pour plates, streptococci were differentiated into hemolytic and nonhemolytic groups. The blood cultures were made by inoculating 180 c.c. of bouillon with about 15 c.c. of blood, and were examined at twenty-four hour intervals for three or four days.

1. In this report the word "primary" signifies ordinary clinical lobar pneumonia or bronchopneumonia.

COMMENT

It will be seen in Table 1 that approximately three and one-half times as many cases of pneumonia developed during the two months of the influenza epidemic as occurred in the camp during the five preceding months, although the number of troops averaged less than one third during the epidemic. The mortality rate in the postinfluenzal pneumonias was nearly three and one-half times that of the primary pneumonias.

Of the complications shown in Table 2, the incidence of empyema and meningitis was approximately twice as great in the influenzal pneumonia series. The bacteriology of the exudates differed considerably in the two series, as shown in the table.

Positive blood cultures were obtained in 20.7 per cent. of the primary pneumonias, but in only 1.6 per cent. of the influenzal pneumonias; a proportion of 13:1. The average leukocyte count in the latter series was considerably less than one half that of the former. Ten and two-tenths per cent. of the primary pneumonias gave a leukocyte count of 12,000 or under, whereas 73.1 per cent. were under 12,000 in the influenzal series.

In Table 4 there is shown a marked difference in the results of sputum "typings." Types I and II pneumococci occurred in 41.1 per cent. of the sputums from cases of primary pneumonia, whereas the same types were found in only 4.6 per cent. of the postinfluenzal cases. Type II atypical and Type III were of about equal ocurrence. Group IV was found in 14.1 per cent. of the primary pneumonias and 46.5 per cent. of the postinfluenzal pneumonias. The hemolytic group of streptococci was encountered more frequently in the primary cases; the nonhemolytic group in the other series.

NOMENCLATURE OF HUMAN ISOHEMAGGLUTINATION GROUPS

M. W. LYON, Jr., M.D.
Captain, M. C., U. S. Army
WASHINGTON, D. C.

In the course of a series of cross agglutinations in order to secure known Group II and Group III serum to keep on hand for grouping individuals for blood transfusions, it became apparent that two systems of designating the four different isohemagglutination groups of men are in use. Few authors[1] refer to the two systems, and the author of the older one is seldom mentioned. While the matter is of little practical importance, it may not be without interest to call attention to the two systems of naming the groups.

The older classification since the existence of four groups has been recognized is that of Jansky.[2] Among others who follow it are Ottenberg,[3] Zinsser,[4] Meleney, Stearns, Fortuine and Ferry,[5] and Edition 1 of the "Laboratory Methods of the United States Army."[6] Here the most common group, the one whose serum is the most agglutinative and whose cells are never agglutinated, is called I. The least common group, the one whose serum never agglutinates and whose corpuscles are always agglutinated except by its own serum, is called IV. Groups II and III embrace those persons whose serum agglutinates each other's cells and the cells of Group IV, but not the cells of Group I, and whose cells are agglutinated by each other's serum and by the serum of Group I and not by that of Group IV. The most commonly encountered of the two reciprocal Groups II and III is designated by Jansky and by every other writer as Group II, and the one less frequently encountered as Group III. Jansky's Groups I, II and III correspond to Groups I, II and III of Hektoen[7] and other early workers when only three groups were recognized.

The other system of numbering the groups is that of Moss.[8] Among others who follow it are Sanford,[9] Stitt,[1] Drinker and Brittingham,[10] and Edition 2 of the "Laboratory Methods of the United States Army." Here the common and strong group is designated as IV, the rare and weak group as I. Groups II and III have the same significance with Moss as with Jansky.

The arguments for following the Jansky classification are its priority, and its rational method of numbering the groups inversely according to their frequency of occurrence. The argument for following the Moss classification is its apparently wider adoption.

Explanatory or partially explanatory words might be used with propriety for designating the groups, such as sthenic and antisthenic for Jansky's Groups I and IV, and parasthenic and antiparasthenic for Groups II and III.

Walter Reed General Hospital.

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Vaccine Treatment of Otitis Media.—In the *Japan Medical World*, Jan. 26, 1919, p. 267, T. Tanaka reports good results from autogenous vaccines made from secretions from the ear or even from the nose if the ear is not discharging. The treatment is effectual in the acute phase or as the otitis is just passing into the chronic stage. The vaccine therapy is peculiarly effectual in otitis media in infants, and the author emphasizes the importance of curing the disease in this early stage as there is no doubt that otitis media in adults is often the result of infectious processes in childhood. The severe pain of otitis media in infants, it is stated, abates and the pathologic process is arrested under the vaccine treatment. The author says that the importance of this is evident as we realize that the staphylococcus, the germ usually involved after the process has persisted for any length of time, is particularly destructive of bone tissue. Ordinary symptomatic treatment does not reach the remoter regions of the lesions, and the destructive process may continue in the depths without any clinical manifestations, while the effect of the vaccine is felt at all depths. The cure is complete under five or six injections, namely, in ten or twelve days; the discharge usually ceases in four or six days. He uses 0.3 mg. of bacteria per cubic centimeter of the physiologic saline, heating this suspension to 30 C. for thirty minutes. After heating, phenol is added to make a 0.5 per cent. solution. In acute cases the intervals are forty-eight hours; in the chronic cases, two or three days. The initial injection dose is 0.1 or 0.15 c.c. for infants and 0.25 for adults, increasing the doses until 1 c.c. is reached, and then recommencing with the inital dose. Tanaka reports an apparently complete cure in 95 per cent. of the acute cases in infants and in 75 per cent. of the chronic cases.

Special Article

HOSPITAL SERVICE IN RURAL COMMUNITIES

A PRELIMINARY REPORT

PREPARED BY ERNST C. MEYER, DIRECTOR OF THE DEPARTMENT OF SURVEYS AND EXHIBITS OF THE ROCKEFELLER FOUNDATION, INTERNATIONAL HEALTH BOARD

NEW YORK

INTRODUCTORY

Public health and sanitation received their first impetus in the urban centers, and quite naturally so, for here the need was greatest. Such extraordinary progress has since been made that the city can claim precedence over the once much vaunted health of the open country. Both old and young in our urban centers live longer and suffer less from sickness than do the inhabitants of the rural regions.

The great national conservation and country life investigations were strong recent influences which brought to the foreground the problem of rural sanitation. Medical inspection of schoolchildren in both urban and rural regions has added many definite data.

Hospitals and health, in almost as intimate a manner as physicians and health, have always been closely associated in the public mind. It was quite natural, therefore, that the rural hospital problem should come to the fore with the rural health problem. Country people have in the past been peculiarly removed from proper hospital care, with consequent unnecessary loss of life and health. Consciousness of this fact has gradually permeated from the medical profession and public health officers to the general population. With it has come the modern movement for rural hospitals based in growing degree on public demand rather than on professional insistence.

But while this educational enlightenment was taking place, the relation of country and city changed markedly. Automobiles, telephones, good roads, motor ambulance service, and other improvements in communication and transportation have done much to span the chasm between the farm-house and the city hospital.

The administration of the first scattered rural hospitals quickly demonstrated the fact that these hospitals must of necessity be of an entirely different type from the city institution. While this would seem self-evident, it is, nevertheless, interesting to record that desperate efforts have been made in the past, and even now are being made, to pattern the rural hospital after its city prototype and to make it express in its routine the large aims of the city institution: treatment of the sick; provision of educational facilities for medical students; investigation of disease; and, more latterly, social service in health for the population with which the city hospital comes in contact.

Gradually it has come to be recognized that the rural hospital can never aspire to the form of service rendered by the city hospital. Adequate treatment of the sick is circumscribed by difficulty in getting proper buildings, efficient staffs of physicians, and well-trained nurses. Educational work is seriously limited by scarcity of clinical material. Research is largely out of the question for the same reason, and because of lack of proper equipment and of ability on the part of staff members to do that kind of work successfully. Lack of vision in some cases, and lack of assistance in others, has prevented social work by rural hospitals, which has distinct possibilities, from assuming the importance that it deserves.

Constantly improving means of communication and transportation are drawing a steadily increasing proportion of country cases to city hospitals. This, coupled with the obvious fact that the ideals of the city hospital are not attainable in the country, has forced supporters of the rural hospital movement to seize on some new idea to justify the community hospital. The original functions of a hospital, as outlined above, have been put more and more into the background, whereas the idea that the rural hospital should be above all else an educational institution, through which the community may be taught the fundamentals of hygiene and right living, has been steadily given more prominence. Coupled with this has come the suggestion that the rural hospital may be made a useful mechanism in surveying community conditions and needs in matters of health and sanitation.[1]

A shifting of the aim and purpose of the rural hospital from distinctly hospital service to the educational field raises a number of serious questions which should be answered before too great an impetus is given to this new aspect of the movement. Is it necessary to proceed with the construction of a relatively expensive building and to provide for its maintenance from year to year in order that its halls may be made the nucleus for an educational movement? Is this the most economical and efficient, or even indispensable method for educating a community in matters of health and sanitation?

To what extent is the rural nurse an effective entering wedge for public health work? Should the whole-time health officer properly follow the nurse when public appreciation of greater expenditures has been secured through the work of a nurse? May the rural hospital problem shape itself very differently in terms of need for hospital service after a nurse and health officer have been active in a community for some years, and after public and private health services and needs have been determined and correlated?

Attention must also be given to the relation of the rural hospital to a general community health program. And what is the relation of such a health program to other programs of local government and welfare service? The hospital represents merely one factor in public health work and private medicine. Public health work again is but one factor in the general program of public administration. One must needs keep in mind that funds must be provided by a community for the financing of all its various public services; for the general government purposes of the legislative, executive and judicial departments; and for the special services of protection of persons and property, of education, of recreation, of charities and corrections, of highways, and last, though by no means least, of health, sanitation, and hospitals.

Hospitals and other institutions are being maintained or, where lacking, their maintenance is being urged, for the care of the insane and the feebleminded, for

1. See in this connection editorial in the Modern Hospital, April, 1919.

the indigent, for contagious diseases, for delinquent boys and girls, and more recently in the form of state farms or reformatories for women, particularly sex offenders.

Urgent demands are being made on communities for the construction of such institutions, and for their maintenance once they have been built. Much evidence is at hand that when the strain of construction has been successfully borne, that of maintenance, with its ever recurring annual demands, has not always been properly shouldered. Altogether too frequently also such institutions as have been built fail miserably to meet even the most pressing needs. Insane asylums are overcrowded and shelter strangely incongruous sufferers of mental disease. Provision for the feebleminded is in large areas of the country almost nonexistent, and where institutions have been provided, as a rule they have been filled shortly after being opened. Today they have long waiting lists, while great numbers of those who need such care are found neither in institutions nor on their waiting lists. State farms or reformatories for women can care for only a small fraction of the many thousands of prostitutes and other delinquents qualified for admission.

Our states, counties and municipalities at the present time own hospitals and correctional and charitable institutions valued at more than three quarters of a billion dollars. They are also annually appropriating some $200,000,000 for maintenance. Yet in spite of these huge outlays, institutional facilities, as already indicated, are wholly inadequate. Strangely little, too, is being done at present to reduce the need for such institutional service. Energy is applied at the lower reaches of the river of life instead of at its source. Lack of popular understanding and support of the nature of the problem involved permits of the continued breeding of the insane and the feebleminded. From these two classes alone come most of our delinquents, the habitual offenders against life, property and morals, who in due course, at least in part, ultimately find their way into institutions.

Those on whom rests the responsibility for shaping public opinion as to the place of the rural hospital in the general scheme of things cannot wisely exclude this larger view of the situation from consideration. It is the purpose of the present study to supply convenient data for contemplation of various aspects of this problem. It may be that the movement toward rural hospitals has arrived at a critical stage. In the interest of the general public health movement it is important that a wrong policy shall not be adopted or continued. It would seem highly desirable that those who are most deeply interested in rural hospitals on the theory that they are indispensable factors for the improvement of health in rural communities shall not place themselves in the dilemma in which those who are at present carrying forward the hospital end of the tuberculosis movement appear to find themselves.[2] It is generally far easier to start a movement than to stop it. The pages which follow are but a poor apology for the large amount of data of all kinds that are so urgently needed.

(To be continued)

2. In certain states, as a result of energetic campaigns, the people have heavily burdened themselves in establishing and maintaining tuberculosis hospitals, sanatoriums, and dispensaries in the expectation—aroused by those who agitated institutional care—that marked reduction in the disease will follow. The fact that these expectations are apparently not being realized is not generally known. The "breaking of the news" to the public is an unpleasant task. While courage to do so is in the making, the taxpayers continue to pay their annual contribution.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

ANTI-ANTHRAX SERUM (See N. N. R., 1919, p. 269).
Lederle Antitoxin Laboratories, New York. (Schieffelin & Co., New York.)

Anti-Anthrax Serum.—Initial doses of 50 to 100 Cc. may be administered intramuscularly or intravenously, to be repeated in twenty-four hours if indicated. Marketed in packages containing one 50-Cc. syringe with bulb and sterile needle.

ANTIDYSENTERIC SERUM (See N. N. R., 1919, p. 269).
Lederle Antitoxin Laboratories, New York. (Schieffelin & Co., New York.)

Antidysenteric Serum (Polyvalent).—From horses hyperimmunized against the Shiga, Kruse, Flexner and Hiss types of dysentery bacilli. Marketed in syringes containing 10 Cc. each with sterile needle.

Dosage.—For prophylaxis: 10 Cc. injected subcutaneously. For treatment: An initial dose of from 50 to 100 Cc. (preferably injected intravenously) and repeated at four-hour intervals as indicated by symptoms.

OLD TUBERCULIN (See N. N. R., 1919, p. 277).
Lederle Antitoxin Laboratories, New York. (Schieffelin & Co., New York.)

Tuberculin von Pirquet Test ("T. O.").—Old tuberculin marketed in packages containing three collapsible wax tubes and three scarifiers.

Tuberculin Subcutaneous Test ("T. O.").—Marketed in vials containing 1 Cc.

NEW TUBERCULIN, B. E. (See N. N. R., 1919, p. 280).
Lederle Antitoxin Laboratories, New York. (Schieffelin & Co., New York.)

Tuberculin "B. E." (Bacillus Emulsion).—Marketed in vials containing 1 Cc.

TUBERCULIN DENYS, B. F. (See N. N. R., 1919, p. 280).
Lederle Antitoxin Laboratories, New York. (Schieffelin & Co., New York.)

Tuberculin "B. F." (Bouillon Filtrate).—Marketed in vials containing 1 Cc.

STREPTOCOCCUS VACCINE (See N. N. R., 1919, p. 291).
Lederle Antitoxin Laboratories, New York. (Schieffelin & Co., New York.)

Streptococcus Vaccine, Polyvalent.—Marketed in 5-Cc. vials containing, respectively, 50, 100, 200, 400 and 800 million killed streptococci.

TYPHOID VACCINE (See N. N. R., 1919, p. 292).
Lederle Antitoxin Laboratories, New York. (Schieffelin & Co., New York.)

Paratyphoid Vaccine.—Marketed in packages of three 1-Cc. vials, one vial containing 250 million each of paratyphoid bacilli A and B while each of the other vials contains 500 million each of paratyphoid bacilli A and B.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See N. N. R., 1919, p. 305).
Lederle Antitoxin Laboratories, New York. (Schieffelin & Co., New York.)

Schick Test.—Marketed in vials containing diphtheria toxin sufficient for ten tests, accompanied by the required amount of sterile diluent to make the proper dilution of the toxin.

Injection of Alcohol in Treatment of Exophthalmic Goiter.—The *Rivista Critica di Clinica Medica*, Nov. 16, 1918, cites some recent experiences, reported by Professor Pitres of Bordeaux, in which 1 c.c. of 80 per cent. alcohol was injected directly into the thyroid in treatment of exophthalmic goiter. The injection was repeated every week or two. There were no untoward by-effects, at most transient constriction in the pharynx and a little spasmodic coughing. The results were quite encouraging, he states. In some of the patients the goiter became reduced in size, and in the majority of the patients the headache became attenuated or subsided altogether, as also the restlessness and emotional instability, the amenorrhea, polyphagia, diarrhea, tachycardia and tremor.

STATE BOARD STATISTICS FOR 1918

ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1138 to 1147 are three tables, A, B and C, giving in detail the results of the various state medical license examinations held during 1918. Full reports were obtained from all state licensing boards and were carefully verified.

Tables A and B, when read from left to right, show for each medical college named (*a*) the number of graduates appearing for examination in each state, (*b*) whether they passed or failed, (*c*) the total number examined during the year, (*d*) the number who passed, (*e*) the number who failed, (*f*) the percentage of failures, and (*g*) the number of states in which graduates of that school appeared for examination. Read from above downward, they give the results by states, showing (*h*) the number registered and rejected from each college, (*i*) the total numbers examined, registered and rejected, and (*j*) the percentage of rejections. The majority of graduates take the license examination in the state in which the college is located, as shown by the dark diagonal zone of figures passing from the upper left to the lower right corner of each table. These tables are worthy of careful study, since important deductions are possible. The marginal numbers will enable one to follow readily the line for any college.

Caution in Forming Conclusions

In making comparisons on the basis of these statistics, several factors should be kept in mind. The number examined is important, since, if all other conditions are equal, the larger the number of graduates examined, the more accurate is the finding. But other conditions are seldom equal. The number of states in which a school's graduates have been examined is important. The larger this number, the more accurate will be the conclusions. Again, the character of the board making the examination and the methods employed are important factors to be considered, since some boards refuse to examine graduates of inferior medical colleges, while others (see Table I) not only examine graduates of all medical colleges but also admit osteopaths to the physician's and surgeon's examination. Some boards also hold careful examinations which include practical laboratory and clinical tests, or they mark the papers more severely, while others, especially partisan boards, are very lenient. Although conditions are undergoing a steady improvement, it is still true that the character of the license examinations as usually conducted is much more lenient than the examinations required in other countries. It is particularly important, in forming conclusions based on these statistics, to note for each college the states in which its graduates are not admitted to examination—information set forth with these statistics in Table D.

Graduates of All Years Examined in 1918

Table A shows the results for all candidates who took examinations in 1918, regardless of the years in which they graduated. This shows that altogether 3,637 candidates were *examined* last year, as compared with 4,730 in 1917, 4,850 in 1916, 5,313 in 1915 and 5,570 in 1914. There has been a steady decrease each year since 1906, when 8,035 physicians were examined. The decrease each year has been due largely to (*a*) the larger registration through reciprocity, and (*b*) the general diminution in the number of medical colleges, students and graduates. The marked diminution this year is due to the enlistment of so many physicians for military medical service. Of those examined this year, 13.3 per cent. failed, as compared with 14.1 per cent. in 1917, 15 per cent. in 1916, 15.6 per cent. in 1915 and 21.6 per cent. in 1914. This reduction in the percentages of failures indicates improved medical teaching, since there are reasons to believe that methods of examination have not been relaxed.

There were 80 medical colleges in the United States granting degrees in 1918 which had graduates examined, as compared with 89 in the years 1917 and 1916, 93 in 1915 and 96 in 1914. There has been a decrease of 73 since 1905, when graduates from 153 medical colleges were examined. The statistics covering schools which have ceased to exist are included in the line for "miscellaneous colleges."

Graduates of Canadian schools were examined in twelve states, more appearing, naturally, in the border states. The figures for the Canadian colleges are given separately in order to show the number of candidates coming from each, and to show the successes of their graduates at the examinations. Altogether, 29 candidates from Canadian colleges were examined, of whom 11, or 37.9 per cent., failed. Foreign graduates were examined in 14 states, the total number being 45, and of his number 17, or 37.8 per cent., failed. In 1917 there were 79 foreign graduates examined. The largest number of foreigners examined in any state in 1918 was 10 in New York, where 8, or 60 per cent., failed.

Undergraduates and Osteopaths Examined During 1918

For the last three years the few undergraduates examined have been accidental instances due evidently to imperfect credentials. In 1906, there were 703 undergraduates examined, and 342 were licensed. Colorado is now the only state which will knowingly admit nongraduates to its examinations, but only four have been licensed in that state in twelve years. The door has been closed, therefore, against the admission to practice of those whose medical training is known to be incomplete. At present, however, some boards are registering as physicians and surgeons, by examination or by reciprocity, graduates of osteopathic colleges—no one of which compares favorably with even the lowest grade Class C medical college—even though two of these states—Colorado and Texas—refuse to recognize Class C medical schools! (See Table D on page 1148).

During 1918, in California, 133 graduates of osteopathic colleges were admitted to the regular examination for licenses as physicians and surgeons, and of this number 77, or 58.3 per cent., were granted licenses. Of the total examined, 58 were given merely an oral examination, and of this number, 34, or 58.6 per cent., were registered. In Colorado, of 26 osteopaths examined, 21, or 80.8 per cent., were granted licenses as physicians and surgeons (see Tables H and I).

Recent Graduates Examined During 1918

Table B gives the results for graduates of 1914 to 1918, inclusive, examined during 1918. This table is important, since it deals with recent graduates, and is, therefore, the fairest basis for comparison between colleges. Of all candidates examined in 1918, 2,984, or 82.1 per cent., were recent graduates, and of this number, 9.3 per cent. failed, as compared with 13.3 per cent. for all candidates.

Old Practitioners Examined During 1918

Table C is so arranged as to show in comparison the results for graduates of all years (first column), for recent graduates (second column), for graduates of 1913 and previous years (third column), and for graduates of 1918 (fourth column). Of the graduates of 1913 and previous years—"old practitioners"—479 were examined, and of this number 146, or 30.5 per cent., failed, as compared with 9.3 per cent. of failures for recent graduates. This high percentage of failures is due largely to the long time these candidates have been out of college and to the fact that they are commonly required to take the same examination as recent graduates. Justice to these older physicians, who have been licensed, but who, for good reasons, desire to change their locations, is a strong argument for interstate reciprocity in medical licensure; for the use of practical examination by which they

CONTINUED ON PAGE 1150

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	ALABAMA																																														
1	University of Alabama School of Medicine	11	0									0	1																																	1
	ARKANSAS																																														
2	University of Arkansas Medical Department	0	1			1	0	21	1											0	1																									2
	CALIFORNIA																																													
3	College of Medical Evangelists									21	0	1	0													1	0																			3
4	College of Physicians and Surgeons, Los Angeles					3	0			23	3			1	1																											1	0			4
5	College of Physicians and Surgs., San Francisco									22	5																																			5
6	Hahnemann Medical College of the Pacific					1	0			8	2																																			6
7	Leland Stanford Junior Univ. School of Medicine									6	0																																			7
8	Oakland College of Medicine and Surgery									4	0																																			8
9	University of California Medical School					1	0			21	0																																			9
	COLORADO																																														
10	University of Colorado School of Medicine											8	0											1	0																	1	0			10
	CONNECTICUT																																													
11	Yale University School of Medicine													4	0																									1	0			1	0			11
	DISTRICT OF COLUMBIA																																														
12	Georgetown University School of Medicine													3	0			5	0																			1	0			2	0			12
13	George Washington University Medical School													1	0			9	0	1	0																					1	0			13
14	Howard University School of Medicine													1	0			15	1							3	0			1	0									4	1	1	0			14
	GEORGIA																																														
15	Emory University School of Medicine	2	0							1	0											28	0																							15
16	University of Georgia Medical Department					1	0													1	1	6	0																							16
	ILLINOIS																																														
17	Chicago College of Medicine and Surgery	1	0			0	1			3	0	1	0					1	0			3	0			36	14			1	0							1	1					17
18	Chicago Hospital College of Medicine											0	1													3	4															3	1			18
19	Hahnemann Medical College and Hospital—H.					0	1																			15	0			4	0	1	0									1	0			19
20	Jenner Medical College																									4	5																			20
21	Loyola University School of Medicine			1	0					1	0	2	0													105	19	1	0	2	0			1	0	1	0							21
22	Northwestern University Medical School	1	0			2	0					1	0													53	1			2	0	1	0											22
23	Rush Medical College (University of Chicago)					1	0			1	0													1	0	100	1	1	0	2	0	1	0									3	0			23
24	University of Illinois College of Medicine					1	0			2	0											1	0			26	0			1	0													24
	INDIANA																																														
25	Indiana University School of Medicine																									1	0	36	0									1	0					25
	IOWA																																													
26	State University of Iowa College of Medicine									1	0									1	0									27	0													26
27	State Univ. of Iowa Coll. of Homeo. Med.—H.					1	0																	1	0	1	1			3	0											1	0			27
	KANSAS																																													
28	University of Kansas School of Medicine																															14	0											28
	KENTUCKY																																														
29	University of Louisville Medical Department					1	0							0	1					1	0													20	0									29
	LOUISIANA																																													
30	Tulane University of Louisiana School of Med.							1	0			1	0							1	0															39	0							30
	MAINE																																													
31	Bowdoin Medical School																																					16	0			2	(0			31
	MARYLAND																																													
32	Johns Hopkins University Medical Department	1	0			1	0			1	0			2	0					1	0																			29	1	4	0	2	0	32
33	Univ. of Md. Sch. of Med. and Coll of P. & S.													3	2	2	1	1	1	3	0																	1	0	12	0	1	2			33
	MASSACHUSETTS																																													
34	Boston University School of Medicine																									0	1											1	0			17	0			34
35	College of Physicians and Surgeons, Boston													0	1																											2	5			35
36	Medical School of Harvard University									2	0			1	0			3	0																			3	1			88	0			36
37	Middlesex College of Medicine and Surgery																																									2	2			37
38	Tufts College Medical School									0	1			5	3			0	1																			0	1			63	2	1	0	38
	MICHIGAN																																													
39	Detroit College of Medicine and Surgery					0	1																																			1	0	20	3	39
40	University of Michigan Medical School					1	0																	1	0																	3	0	58	1	40
41	University of Michigan Homeo. Med. School—H.																																											14	0	41
	MINNESOTA																																													
42	University of Minnesota Medical School					1	0																																							42
	MISSOURI																																													
43	Kansas City College of Medicine and Surgery—E.							23	0			1	1																																	43
44	St. Louis College of Physicians and Surgeons																													1	0			1	0									44
45	St. Louis University School of Medicine					1	0	1	0			2	0																	1	0													45
46	Washington University Medical School					2	0					1	0							1	0					3	0			1	0	1	0									1	0			46
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																					

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

| Marginal Number | 23 Minnesota | | 24 Mississippi | | 25 Missouri | | 26 Montana | | 27 Nebraska | | 28 Nevada | | 29 New Hampshire | | 30 New Jersey | | 31 New Mexico | | 32 New York | | 33 North Carolina | | 34 North Dakota | | 35 Ohio | | 36 Oklahoma | | 37 Oregon | | 38 Pennsylvania | | 39 Rhode Island | | 40 South Carolina | | 41 South Dakota | | 42 Tennessee | | 43 Texas | | 44 Utah | | 45 Vermont | | 46 Virginia | | 47 Washington | | 48 West Virginia | | 49 Wisconsin | | 50 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Exam. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	NEBRASKA																																													
47	John A. Creighton Medical College									2	0	1	0																																	47
48	Lincoln Medical College, Lincoln, Neb.—E.							2	0															1	0																					48
49	University of Nebraska College of Medicine																																													49
	NEW YORK																																													
50	Albany Medical College									1	0									1	0									1	0													50
51	Columbia University College of Phys. and Surgs.													4	1							2	0	1	0					1	0							1	0			2	0	1	0	51
52	Cornell University Medical College					1	0							1	0																											1	0			52
53	Fordham University School of Medicine													2	0																															53
54	Long Island College Hospital													1	0					0	1																					1	0			54
55	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.													2	0	2	0																							1	0					55
56	New York Med. Coll. and Hosp. for Women—H.																																													56
57	Syracuse University College of Medicine					1	1																																	1	0			57
58	University and Bellevue Hospital Med. Coll.													2	0											1	0									1	0					1	0			58
59	University of Buffalo Department of Medicine									1	0													1	0	0	1															1	0			59
	OHIO																																													
60	Eclectic Medical College—E.											0	1															1	0					5	0	0	1					1	0			60
61	Ohio State University College of Medicine											1	0																																	61
62	Ohio State University Coll. of Homeo. Med.—H.																																									1	0			62
63	University of Cincinnati College of Medicine											1	0																																	63
64	Western Reserve University School of Medicine																							1	0																					64
	OKLAHOMA																																													
65	University of Oklahoma School of Medicine																																									1	0			65
	OREGON																																													
66	University of Oregon Department of Medicine																																												66
	PENNSYLVANIA																																												
67	Hahnemann Medical College and Hospital—H.													1	0	1	0							1	0	1	0													4	0	1	0			67
68	Jefferson Medical College					1	0			1	0			0	1	4	0			1	0																	1	0			1	0			68
69	Temple University Department of Medicine															1	0																									1	0			69
70	University of Pennsylvania School of Medicine					2	0							2	0															1	0	1	0									2	0			70
71	University of Pittsburgh School of Medicine																																													71
72	Woman's Medical College of Pennsylvania																																									1	0			72
	SOUTH CAROLINA																																													
73	Medical College of the State of South Carolina																																												73
	TENNESSEE																																													
74	Meharry Medical College	1	5					5	2											0	2	4	0			5	5	1	2					10	2	1	1			1	2	1	1			74
75	University of Tennessee College of Medicine							4	0															1	0	1	0																	75
76	Univ. of West Tennessee Coll. of Med. and Surg.																																									1				76
77	Vanderbilt University Medical Department	1	1			2	0	1	0													1	0							1	0			1	0									77
	TEXAS																																												
78	Baylor University College of Medicine																																													78
79	University of Texas Department of Medicine																							1	0											1	0									79
	VERMONT																																												
80	University of Vermont College of Medicine													2	1			1	0																			1	0			2	0			80
	VIRGINIA																																												
81	Medical College of Virginia									0	1			0	1					1	0																					1	0			81
82	University of Virginia Department of Medicine																																													82
	WISCONSIN																																												
83	Marquette University School of Medicine																																													83
	CANADA																																													
84	Laval University Faculty of Medicine																																										0	1			84
85	McGill University Faculty of Medicine																																										1	0			85
86	Queen's University Faculty of Medicine																									2	1																			86
87	University of Manitoba, Manitoba Medical Coll.																																													87
88	University of Toronto Faculty of Medicine																									1	0																			88
89	Western University Faculty of Medicine																																												1	0	89
90	Foreign Colleges					1	0			2	2			1	1					0	1					1	0	1	2													0	1			90
91	Miscellaneous Medical Colleges	2	2			6	4	10	1	2	1	2	1	0	1			2	1	7	2	3	2	3	0	4	4	2	2	0	1	1	0	2	0	5	4			2	1	7	2			91
92	Nondescript Colleges and Undergraduates									77	56	21	5											2	0																	1	0			92
93	Totals by States	29	1	41	72	274	54	53	11	41	29	50	16	424	49	51	20	42	56	20	59	246	101	93
94	Totals—Examined—Passed	20	1	33	68	203	44	39	10	37	21	48	16	367	43	50	20	40	50	27	54	228	97	94
95	Totals—Examined—Failed	9	0	8	4	71	10	14	1	4	8	2	0	57	6	1	0	2	6	3	5	18	4	95
96	Percentage of Failures	31.0	0.0	19.5	5.6	25.6	18.5	26.4	9.1	9.8	27.6	4.0	0.0	13.4	12.2	2.0	0.0	4.8	10.7	10.0	8.5	7.3	4.0	96
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

Marginal Number	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming						
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
87	1 0		3 0	1 0	16 0							1 0			2 0													27	27	0	0.0	8	87
88																													3	3	0	0.0	2	88
89	1 0				26 0														1 0								1 0		29	29	0	0.0	4	89
90										16 4															1 0				22	19	4	17.4	4	90
91										86 12	1 0		2 0																115	102	13	11.3	11	91
92										28 1						1 0													33	32	1	3.0	5	92
93										58 10						2 0													72	62	10	13.9	8	93
94										39 2																			44	41	3	6.8	4	94
95										35 21						0 1											1 0		68	41	22	34.9	6	95
96										5 1																			6	5	1	16.7	1	96
97	2 0									28 1						1 0													35	33	2	5.7	5	97
98										72 6			1 0			0 1													85	78	7	8.2	7	98
99										28 6						3 0									2 0				42	35	7	16.7	6	99
60					1 0					0 1			15 0							1 0						1 0		1 0	29	26	3	10.3	11	60
61													23 0															1 0	25	25	0	0.0	3	61
62													12 0																13	13	0	0.0	2	62
63													23 0																24	24	0	0.0	2	63
64													41 0			1 1						2 0							46	45	1	2.2	4	64
65										2 0				13 0															16	16	0	0.0	3	65
66						1 0									11 0										5 0				17	17	0	0.0	3	66
67								1 0					1 0			13 1			1 0										26	25	1	3.8	10	67
68	1 0			1 0				2 0		5 3	14 0		2 0			46 1		2 0	1 0			1 0	1 0	3 0	2 0		1 0		96	91	5	5.2	21	68
69													1 0			7 0													10	10	0	0.0	4	69
70	1 0							6 0		8 4	12 0		2 0			43 3		2 0			1 0	1 0							91	84	7	7.7	14	70
71													5 0			11 0													16	16	0	0.0	2	71
72										0 3	1 0					11 0					1 0								17	14	3	17.7	5	72
73										0 1								10 2											13	10	3	23.1	2	73
74			5 7								2 0		2 4	2 0				0 1		51 9	3 0					0 1 0 1		139	94	45	32.4	19	74
75		1 0																0 1		6 0									14	13	1	7.2	6	75
76			1 2											1 0						6 8									20	9	11	55.0	4	76
77			1 0							1 0								0 1		23 0				1 0	1 0 0 1		1 0 1 0		39	36	3	7.7	15	77
78														1 0							13 1								15	14	1	6.7	2	78
79										1 0											41 0								44	44	0	0.0	4	79
80										3 0					0 1		1 0						18 0						30	28	2	6.7	8	80
81										2 4	3 1					2 0		1 0						24 3		1 0			45	35	10	22.2	10	81
82																					1 0			11 0	1 0	1 0			14	14	0	0.0	4	82
83																											8 0		8	8	0	0.0	1	83
84																	0 1												2	0	2	100.0	2	84
85							0 1			1 2									1 0				2 0		1 0				11	8	3	27.3	7	85
86										3 3														1 0					10	6	4	40.0	3	86
87																									1 0				1	1	0	0.0	1	87
88													1 0												1 0				3	3	0	0.0	3	88
89																									0 1				2	1	1	50.0	2	89
90								4 1		2 8			2 0			4 1					3 0				5 0		2 0		45	28	17	37.8	14	90
91			38 1	3 7					1 0	5 5	4 2	1 0	2 1	2 0	9 5	13 6	1 1	1 5	1 0	4 1	13 1	0 1		6 2	7 3	1 2	2 0	2 1	249	176	73	29.4	39	91
92	3 0						1 1																		6 1				174	111	63	35.8	7	92
93	68	12	164	27	45	6	6	17	2	575	52	9	148	24	42	190	17	29	14	122	84	11	24	56	66	20	36	24	3637					93
94	68	12	143	20	44	5	4	16	2	456	49	6	142	24	35	168	13	17	14	103	82	10	24	50	59	16	34	22	....	3154				94
95	0	0	21	7	1	1	2	1	0	117	3	3	6	0	7	22	4	12	0	19	2	1	0	6	7	4	2	2	....	....	483			95
96	0.0	0.0	12.8	25.9	2.2	16.7	33.3	5.9	0.0	20.4	5.8	33.3	4.1	0.0	16.7	11.6	23.5	41.4	0.0	15.6	2.4	9.1	0.0	10.7	9.2	20.0	5.6	8.3	....	....	....	13.3		96
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	ALABAMA																																														
1	University of Alabama School of Medicine	11	0																																												1
	ARKANSAS																																														
2	University of Arkansas Medical Department	0	1					20	0																																					2
	CALIFORNIA																																														
3	College of Medical Evangelists									21	0	1	0													1	0																			3
4	College of Physicians and Surgeons, Los Angeles					1	0			23	3																															1	0			4
5	College of Physicians and Surgs., San Francisco									22	5																																			5
6	Hahnemann Medical College of the Pacific					1	0			8	2																																			6
7	Leland Stanford Junior Univ. School of Medicine									6	0																																			7
8	Oakland College of Medicine and Surgery									4	0																																			8
9	University of California Medical School									21	0																																			9
	COLORADO																																														
10	University of Colorado School of Medicine											8	0																																	10
	CONNECTICUT																																														
11	Yale University School of Medicine													4	0																													1	0			11
	DISTRICT OF COLUMBIA																																														
12	Georgetown University School of Medicine													3	0			5	0																			1	0					1	0			12
13	George Washington University Medical School													1	0			9	0																									1	0			13
14	Howard University School of Medicine																	14	0							3	0			1	0											4	1	1	0			14
	GEORGIA																																														
15	Emory University School of Medicine	2	0							1	0											28	0																							15
16	University of Georgia Medical Department																					6	0																							16
	ILLINOIS																																														
17	Chicago College of Medicine and Surgery	1	0			0	1			3	0	1	0					1	0			3	0			35	13			1	0													17
18	Chicago Hospital College of Medicine											0	1													3	4															3	1			18
19	Hahnemann Medical College and Hospital.—H.																									15	0			4	0	1	0									1	0			19
20	Jenner Medical College																									4	3																			20
21	Loyola University School of Medicine									1	0	2	0													103	16	1	0	2	0			1	0									21
22	Northwestern University Medical School											1	0													53	1			2	0													22
23	Rush Medical College (University of Chicago)					1	0			1	0															99	1	1	0	2	0	1	0											23
24	University of Illinois College of Medicine					1	0			2	0											1	0			24	0			1	0											1	0			24
	INDIANA																																														
25	Indiana University School of Medicine																									1	0	36	0													1	0			25
	IOWA																																														
26	State University of Iowa College of Medicine									1	0																			27	0													26
27	State Univ. of Iowa Coll. of Homeo. Med.—H.																													3	0											1	0			27
	KANSAS																															14	0											28
28	University of Kansas School of Medicine																																														
	KENTUCKY																																	16	0									29
29	University of Louisville Medical Department					1	0							0	1																													29
	LOUISIANA																																			39	0									
30	Tulane University of Louisiana School of Med.							1	0											1	0																							30
	MAINE																																					16	0							
31	Bowdoin Medical School																																													31
	MARYLAND																																							29	1	3	0	2	0	
32	Johns Hopkins University Medical Department	1	0			1	0			1	0			2	0					1	0																					12	0	0	1			32
33	Univ. of Md. Sch. of Med. and Coll of P. & S.													2	2	1	1	1	1	1	0																			1	0					33
	MASSACHUSETTS																																														
34	Boston University School of Medicine																																										16	0			34
35	College of Physicians and Surgeons, Boston																																											1	5			35
36	Medical School of Harvard University									2	0			1	0			1	0																					2	1			85	0			36
37	Middlesex College of Medicine and Surgery																																										2	2			37
38	Tufts College Medical School									0	1			5	3																													63	2	1	0	38
	MICHIGAN																																														
39	Detroit College of Medicine and Surgery					0	1																																					20	3	39
40	University of Michigan Medical School																																										2	0	58	1	40
41	University of Michigan Homeo. Med. School—H.																																												14	0	41
	MINNESOTA																																														
42	University of Minnesota Medical School																																													42
	MISSOURI																																														
43	Kansas City College of Medicine and Surgery—E.							23	0			1	1																																	43
44	St. Louis College of Physicians and Surgeons																																	1	0									44
45	St. Louis University School of Medicine					1	0	1	0			2	0																	1	0													45
46	Washington University Medical School																									3	0			1	0	1	0											46
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

Marginal Number	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming						
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
1		1 0																											12	12	0	0.0	2	1
2						0 1																				1 0			23	21	2	8.7	4	2
3															1 0										1 0				25	25	0	0.0	5	3
4						1 0									1 0										2 0				32	29	3	9.4	6	4
5																									1 0				28	23	5	17.9	2	5
6						2 0																			1 0				14	12	2	14.3	4	6
7																													6	6	0	0.0	1	7
8																													4	4	0	0.0	1	8
9																													21	21	0	0.0	1	9
10				1 0																					1 0				10	10	0	0.0	2	10
11																													5	5	0	0.0	2	11
12													1 0		1 0														12	12	0	0.0	6	12
13														1 0		1 0											2 0		14	14	0	0.0	5	13
14			1 0							1 1 4 0						1 0								1 0				33	31	2	6.1	10	14
15										0 2								0 1 1 0											35	32	3	8.6	6	15
16																													6	6	0	0.0	1	16
17			1 0 1	0 1	0							0 1					1 0				1 0 1	0			2 0		5 1	2 0	76	60	16	21.1	18	17
18																												8 0	20	14	6	30.0	4	18
19				1 0																1 0									23	23	0	0.0	6	19
20																									1 0				8	5	3	37.5	2	20
21	1 0		3 0	1 0	0 1				1 0										1 0	2 0					2 0	6 0		2 0	146	129	17	11.6	16	21
22	2 0	1 0	2 0																2 0						2 0		1 0		67	66	1	1.5	9	22
23	4 0		1 0	2 0						2 0		1 0	1 0									1 0	1 0		2 0		5 0		127	126	1	0.8	17	23
24	1 0		1 0																1 0						1 0		2 0		35	35	0	0.0	10	24
25																													38	28	0	0.0	2	25
26																													28	28	0	0.0	2	26
27																													4	4	0	0.0	2	27
28			4 0																										18	18	0	0.0	2	28
29																0 1										1 0			20	18	2	10.0	5	29
30		9 0																			4 0								54	54	0	0.0	5	30
31	1 0									1 0																			18	18	0	0.0	3	31
32										5 2 1	0 1	0 1	0		2 0	2 0						1 0		2 0				58	55	3	5.2	16	32
33								2 0		2 1 3	0					3 1		1 0		1 0		1 0				3 0			41	34	7	17.1	15	33
34	1 0						1 0			0 1 2	0																		21	20	1	4.8	5	34
35																													6	1	5	83.3	1	35
36	1 0						1 0			5 2 1	0		2 0				4 0										1 0		109	106	3	2.8	12	36
37																									1 0				5	3	2	40.0	2	37
38								1 0		4 3			1 0				5 1						1 0						91	81	10	11.0	9	38
39																													24	20	4	16.7	2	39
40	1 0									1 1																			64	62	2	3.1	4	40
41										1 1																			16	15	1	6.3	2	41
42	46 0																								1 0				47	47	0	0.0	2	42
43																													25	24	1	4.0	2	43
44			16 10																1 0	8 1								2 1	40	28	12	30.0	5	44
45			51 0																						1 0				57	57	0	0.0	6	45
46			12 0																			2 0					1 0		20	20	0	0.0	6	46
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	NEBRASKA																																														
47	John A. Creighton Medical College	..	..	..	..	..	..	..	..	2	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47
48	Lincoln Medical College, Lincoln, Neb.—E.	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48
49	University of Nebraska College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
	NEW YORK																																												
50	Albany Medical College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50
51	Columbia University College of Phys. and Surgs.	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..	..	..	..	..	2	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	51
52	Cornell University Medical College	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	52
53	Fordham University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	53
54	Long Island College Hospital	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	54
55	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.	..	..	..	..	..	..	..	..	..	..	..	..	2	0	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	55
56	New York Med. Coll. and Hosp. for Women—H.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	56
57	Syracuse University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	57
58	University and Bellevue Hospital Med. Coll.	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	58
59	University of Buffalo Department of Medicine	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	59
	OHIO																																												
60	Eclectic Medical College—E.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	5	0	..	..	..	..	..	..	..	..	..	..	..	..	60
61	Ohio State University College of Medicine	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	61
62	Ohio State University Coll. of Homeo. Med.—H.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	62
63	University of Cincinnati College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	63
64	Western Reserve University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64
	OKLAHOMA																																												
65	University of Oklahoma School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	65
	OREGON																																												
66	University of Oregon Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	66
	PENNSYLVANIA																																												
67	Hahnemann Medical College and Hospital—H.	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	0	..	..	..	..	67
68	Jefferson Medical College	..	..	..	..	..	..	..	..	1	0	..	..	..	..	4	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	68
69	Temple University Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	69
70	University of Pennsylvania School of Medicine	..	..	..	..	1	0	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	1	0	..	..	70
71	University of Pittsburgh School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	71
72	Woman's Medical College of Pennsylvania	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	72
	SOUTH CAROLINA																																												
73	Medical College of the State of South Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	73
	TENNESSEE																																												
74	Meharry Medical College	1	5	..	..	..	..	5	2	..	..	..	..	..	..	..	..	..	..	0	2	4	0	..	..	4	3	1	2	..	..	..	..	10	2	1	0	..	..	1	2	1	1	..	..	74
75	University of Tennessee College of Medicine	..	..	..	..	..	..	4	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	75
76	Univ. of West Tennessee Coll. of Med. and Surg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	76
77	Vanderbilt University Medical Department	1	1	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	77
	TEXAS																																												
78	Baylor University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	78
79	University of Texas Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	79
	VERMONT																																												
80	University of Vermont College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	80
	VIRGINIA																																												
81	Medical College of Virginia	..	..	..	..	..	..	..	..	0	1	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	81
82	University of Virginia Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	82
	WISCONSIN																																												
83	Marquette University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	83
	CANADA																																												
84	Laval University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	84
85	McGill University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	1	0	..	..	85
86	Queen's University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	86
87	University of Manitoba, Manitoba Medical Coll.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	87
88	University of Toronto Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	88
89	Western University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	89
90	Foreign Colleges	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	90
91	Miscellaneous Medical Colleges	2	0	..	..	1	0	1	0	2	1	1	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	91
92	Nondescript Colleges and Undergraduates	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	92
93	Totals by States	26		0		12		59		138		21		43		10		32		5		46		3		392		42		47		18		36		43		22		56		209		101		93
94	Totals—Examined—Passed	19		0		10		57		124		19		34		9		31		3		46		3		351		40		47		18		34		43		21		52		194		97		94
95	Totals—Examined—Failed	7		0		2		2		14		2		9		1		1		2		0		0		41		2		0		0		2		0		1		4		15		4		95
96	Percentage of Failures	26.9		0.0		16.7		3.4		10.1		9.5		21.0		10.0		3.1		40.0		0.0		0.0		10.4		4.8		0.0		0.0		5.6		0.0		4.5		7.1		7.2		4.0		96
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

Marginal Number	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming						
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
87	1 0		3 0	1 0	16 0										2 0														26	26	0	0.0	7	87
88	1 0				20 0														1 0										28	28	0	0.0	3	88
89										16 4																			20	16	4	20.0	1	89
90										80 12	1 0		1 0												1 0				109	96	13	11.9	8	90
91										28 1						1 0													32	31	1	3.1	4	91
92										57 9						2 0													70	61	9	12.9	3	92
93										39 2																			42	40	2	4.8	2	93
94										35 19						0 1											1 0		61	41	20	32.8	6	94
95										5 1																			6	5	1	16.7	1	95
96	1 0									27 1						1 0													32	31	1	3.1	4	96
97										72 6			1 0																84	78	6	7.1	6	97
98										28 6						1 0									1 0				37	31	6	16.2	4	98
99																																		99
100					1 0					0 1			15 0							1 0					1 0				28	24	1	4.0	7	100
101													23 0														1 0		25	25	0	0.0	3	101
102													12 0																13	13	0	0.0	2	102
103													23 0																23	23	0	0.0	1	103
104													41 0			1 0						2 0							45	45	0	0.0	4	104
105										2 0				13 0															16	16	0	0.0	2	105
106															11 0										2 0				13	13	0	0.0	2	106
107								1 0								13 1													22	21	1	4.5	6	107
108	1 0			1 0				2 0		3 1	14 0		2 0			45 1		2 0	1 0			1 0	1 0	3 0	1 0		1 0		86	84	2	2.3	17	108
109													1 0			7 6													10	10	0	0.0	4	109
110	1 0							6 0		5 3	12 0		2 0			43 3		2 0			1 0	1 0							85	79	6	7.1	14	110
111													5 0			11 0													16	16	0	0.0	2	111
112										0 2	1 0					11 0													14	12	2	14.3	3	112
113																		10 0											10	10	0	0.0	1	113
114			5 7								2 0		2 4	2 0						50 9	2 0					0 1	0 1		133	92	41	30.8	18	114
115	1 0																			6 0									11	11	0	0.0	3	115
116			1 2											1 0						5 7									18	8	10	55.6	4	116
117			1 0							1 0								0 1		23 0			1 0		1 0		1 0		35	33	2	5.7	12	117
118														1 0							13 1								15	14	1	6.7	2	118
119										1 0											41 0								43	43	0	0.0	3	119
120										3 0							1 0						18 0						26	25	1	3.8	5	120
121										1 4	2 1					1 0		1 0						24 3		1 0			41	31	10	24.4	9	121
122																					1 0			11 0		1 0			13	13	0	0.0	3	122
123																											8 0		8	8	0	0.0	1	123
124																																		124
125							0 1			1 1									1 0										1	0	1	100.0	1	125
126										2 3																			6	4	2	33.3	5	126
127																									1 0				6	3	3	50.0	2	127
128																													1	1	0	0.0	1	128
129																													0	0	0	0.0	0	129
130																													1	1	0	0.0	1	130
131										0 1											1 0				1 0		1 0		7	5	2	28.6	6	131
132			31 1	1 0						1 1	0 1				0 2	11 2		0 1		3 0	12 1	0 1		1 0				1 0	81	69	12	14.8		132
133																																		133
134	64	12	153	9	45	4	3	12	1	527	45	3	138	18	20	165	12	19	9	118	79	11	22	45	27	15	31	17	2984					134
135	64	12	133	9	44	3	2	12	1	435	43	2	134	18	18	155	11	16	9	100	77	10	22	42	27	14	29	16	2710					135
136	0	0	20	0	1	1	1	0	0	92	2	1	4	0	2	10	1	3	0	18	2	1	0	3	0	1	2	1			274			136
137	0.0	0.0	13.1	0.0	2.2	25.0	33.3	0.0	0.0	17.4	4.4	33.3	2.9	0.0	10.0	6.1	8.3	15.8	0.0	15.3	2.5	9.1	0.0	6.7	0.0	6.7	6.5	5.9				9.2		137
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1914-1918					Graduates of 1913 and Previous					Graduates of 1918					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	ALABAMA																					
1	University of Alabama School of Medicine	13	12	1	7.7	3	12	12	0	0.0	2	1	0	1	100.0	1	9	9	0	0.0	2	1
	ARKANSAS																					
2	University of Arkansas Medical Department	27	23	4	14.8	6	23	21	2	8.7	4	4	2	2	50.0	3	22	21	1	4.5	3	2
	CALIFORNIA																					
3	College of Medical Evangelists	25	25	0	0.0	5	25	25	0	0.0	5	0	0	0	0.0	0	23	23	0	0.0	3	3
4	College of Physicians and Surgeons, Los Angeles	36	32	4	11.1	7	32	29	3	9.4	6	4	3	1	25.0	2	28	25	3	10.7	2	4
5	College of Physicians and Surgs., San Francisco	28	23	5	17.9	2	28	23	5	17.9	2	0	0	0	0.0	0	25	20	5	20.0	2	5
6	Hahnemann Medical College of the Pacific	14	12	2	14.3	4	14	12	2	14.3	4	0	0	0	0.0	0	12	10	2	16.7	3	6
7	Leland Stanford Junior Univ. School of Medicine	6	6	0	0.0	1	6	6	0	0.0	1	0	0	0	0.0	0	3	3	0	0.0	1	7
8	Oakland College of Medicine and Surgery	4	4	0	0.0	1	4	4	0	0.0	1	0	0	0	0.0	0	4	4	0	0.0	1	8
9	University of California Medical School	22	22	0	0.0	2	21	21	0	0.0	1	1	1	0	0.0	1	21	21	0	0.0	1	9
	COLORADO																					
10	University of Colorado School of Medicine	13	13	0	0.0	5	10	10	0	0.0	3	3	3	0	0.0	3	8	8	0	0.0	2	10
	CONNECTICUT																					
11	Yale University School of Medicine	6	6	0	0.0	3	5	5	0	0.0	2	1	1	0	0.0	1	5	5	0	0.0	2	11
	DISTRICT OF COLUMBIA																					
12	Georgetown University School of Medicine	13	13	0	0.0	6	12	12	0	0.0	6	1	1	0	0.0	1	9	9	0	0.0	4	12
13	George Washington University Medical School	18	18	0	0.0	9	14	14	0	0.0	5	4	4	0	0.0	4	6	6	0	0.0	1	13
14	Howard University School of Medicine	37	33	4	10.8	11	33	31	2	6.1	10	4	2	2	50.0	3	18	17	1	5.6	5	14
	GEORGIA																					
15	Emory University School of Medicine	36	32	4	11.1	7	35	32	3	8.6	6	1	0	1	100.0	1	29	28	1	3.4	3	15
16	University of Georgia Medical Department	10	8	2	20.0	4	6	6	0	0.0	1	4	2	2	50.0	3	6	6	0	0.0	1	16
	ILLINOIS																					
17	Chicago College of Medicine and Surgery	82	63	19	23.2	19	76	60	16	21.1	18	6	3	3	50.0	4	0	0	0	0.0	0	17
18	Chicago Hospital College of Medicine	20	14	6	30.0	4	20	14	6	30.0	4	0	0	0	0.0	0	13	11	2	15.4	3	18
19	Hahnemann Medical College and Hospital—H.	25	24	1	4.0	8	23	23	0	0.0	6	2	1	1	50.0	2	20	20	0	0.0	4	19
20	Jenner Medical College	10	5	5	50.0	2	8	5	3	37.5	2	2	0	2	100.0	1	0	0	0	0.0	0	20
21	Loyola University School of Medicine	158	136	22	14.0	21	146	129	17	11.6	16	12	7	5	41.7	8	104	96	8	7.7	8	21
22	Northwestern University Medical School	74	73	1	1.4	14	67	66	1	1.5	9	7	7	0	0.0	6	63	62	1	1.6	8	22
23	Rush Medical College (University of Chicago)	143	140	3	2.1	23	127	126	1	0.8	17	16	14	2	12.5	11	99	98	1	1.0	7	23
24	University of Illinois College of Medicine	47	46	1	2.1	14	35	35	0	0.0	10	12	11	1	8.3	7	26	26	0	0.0	3	24
	INDIANA																					
25	Indiana University School of Medicine	38	38	0	0.0	3	38	38	0	0.0	3	0	0	0	0.0	0	35	35	0	0.0	1	25
	IOWA																					
26	State University of Iowa College of Medicine	30	30	0	0.0	4	28	28	0	0.0	3	2	2	0	0.0	2	27	27	0	0.0	1	26
27	State Univ. of Iowa Coll. of Homeo. Med.—H.	9	8	1	11.1	6	4	4	0	0.0	2	5	4	1	20.0	4	4	4	0	0.0	2	27
	KANSAS																					
28	University of Kansas School of Medicine	18	18	0	0.0	2	18	18	0	0.0	2	0	0	0	0.0	0	17	17	0	0.0	2	28
	KENTUCKY																					
29	University of Louisville Medical Department	31	26	5	16.1	9	20	18	2	10.0	5	11	8	3	27.3	7	14	14	0	0.0	2	29
	LOUISIANA																					
30	Tulane University of Louisiana School of Med.	57	57	0	0.0	8	54	54	0	0.0	5	3	3	0	0.0	3	50	50	0	0.0	4	30
	MAINE																					
31	Bowdoin Medical School	20	20	0	0.0	4	18	18	0	0.0	3	2	2	0	0.0	1	16	16	0	0.0	1	31
	MARYLAND																					
32	Johns Hopkins University Medical Department	60	57	3	5.0	16	58	55	3	5.2	16	2	2	0	0.0	2	33	32	1	3.0	10	32
33	Univ. of Md. Sch. of Med. and Coll of P. & S.	51	42	9	17.6	19	41	34	7	17.1	15	10	8	2	20.0	8	16	16	0	0.0	6	33
	MASSACHUSETTS																					
34	Boston University School of Medicine	28	25	3	10.7	9	21	20	1	4.8	5	7	5	2	28.6	6	16	16	0	0.0	2	34
35	College of Physicians and Surgeons, Boston	11	3	8	72.7	5	6	1	5	83.3	1	5	2	3	60.0	5	0	0	0	0.0	0	35
36	Medical School of Harvard University	117	114	3	2.6	14	109	106	3	2.8	12	8	8	0	0.0	5	91	90	1	1.1	10	36
37	Middlesex College of Medicine and Surgery	5	3	2	40.0	2	5	3	2	40.0	2	0	0	0	0.0	0	4	2	2	50.0	1	37
38	Tufts College Medical School	99	85	14	14.1	12	91	81	10	11.0	9	8	4	4	50.0	4	75	66	9	12.0	7	38
	MICHIGAN																					
39	Detroit College of Medicine and Surgery	25	21	4	16.0	3	24	20	4	16.7	2	1	1	0	0.0	1	23	20	3	13.0	1	39
40	University of Michigan Medical School	71	68	3	4.2	10	64	62	2	3.1	4	7	6	1	14.3	7	62	60	2	3.2	4	40
41	University of Michigan Homeo. Med. School—H.	17	16	1	5.9	3	16	15	1	6.3	2	1	1	0	0.0	1	14	14	0	0.0	1	41
	MINNESOTA																					
42	University of Minnesota Medical School	49	49	0	0.0	4	47	47	0	0.0	2	2	2	0	0.0	2	45	45	0	0.0	1	42
	MISSOURI																					
43	Kansas City College of Medicine and Surgery—E.	25	24	1	4.0	2	25	24	1	4.0	2	0	0	0	0.0	0	23	23	0	0.0	1	43
44	St. Louis College of Physicians and Surgeons	43	31	12	28.0	7	40	28	12	30.0	5	3	3	0	0.0	3	33	22	11	33.3	4	44
45	St. Louis University School of Medicine	59	58	1	1.7	6	57	57	0	0.0	6	2	1	1	50.0	1	55	55	0	0.0	4	45
46	Washington University Medical School	26	26	0	0.0	10	20	20	0	0.0	6	6	6	0	0.0	5	18	18	0	0.0	5	46

H. = Homeopathic; E. = Eclectic.

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1914-1918					Graduates of 1913 and Previous					Graduates of 1918					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	NEBRASKA																					
47	John A. Creighton Medical College	27	27	0	0.0	8	26	26	0	0.0	7	1	1	0	0.0	1	17	17	0	0.0	2	47
48	Lincoln Medical College, Lincoln, Neb.—E.	3	3	0	0.0	2	2	2	0	0.0	1	1	1	0	0.0	1	2	2	0	0.0	1	48
49	University of Nebraska College of Medicine	29	29	0	0.0	4	28	28	0	0.0	3	1	1	0	0.0	1	26	26	0	0.0	1	49
	NEW YORK																					
50	Albany Medical College	23	19	4	17.4	4	20	16	4	20.0	1	3	3	0	0.0	3	8	8	0	0.0	1	50
51	Columbia University College of Phys. and Surgs.	115	102	13	11.3	11	109	96	13	11.9	8	6	6	0	0.0	5	88	74	9	10.8	5	51
52	Cornell University Medical College	33	32	1	3.0	5	32	31	1	3.1	4	1	1	0	0.0	1	21	20	1	4.8	2	52
53	Fordham University School of Medicine	72	62	10	13.9	3	70	61	9	12.9	3	2	1	1	50.0	1	54	51	3	5.6	2	53
54	Long Island College Hospital	44	41	3	6.8	4	42	40	2	4.8	2	2	1	1	50.0	2	33	31	2	6.1	2	54
55	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.	63	41	22	34.9	6	61	41	20	32.8	6	2	0	2	100.0	1	39	29	10	25.7	5	55
56	New York Med. Coll. and Hosp. for Women—H.	6	5	1	16.7	1	6	5	1	16.7	1	0	0	0	0.0	0	4	4	0	0.0	1	56
57	Syracuse University College of Medicine	35	33	2	5.7	5	32	31	1	3.1	4	3	2	1	33.3	2	24	24	0	0.0	2	57
58	University and Bellevue Hospital Med. Coll.	85	78	7	8.2	7	84	78	6	7.1	6	1	0	1	100.0	1	75	70	5	6.7	4	58
59	University of Buffalo Department of Medicine	42	35	7	16.7	6	37	31	6	16.2	4	5	4	1	20.0	4	25	22	3	12.0	1	59
	OHIO																					
60	Eclectic Medical College—E.	29	26	3	10.3	11	25	24	1	4.0	7	4	2	2	50.0	4	23	23	0	0.0	6	60
61	Ohio State University College of Medicine	25	25	0	0.0	3	25	25	0	0.0	3	0	0	0	0.0	0	23	23	0	0.0	1	61
62	Ohio State University Coll. of Homeo. Med.—H.	13	13	0	0.0	2	13	13	0	0.0	2	0	0	0	0.0	0	13	13	0	0.0	2	62
63	University of Cincinnati College of Medicine	24	24	0	0.0	2	23	23	0	0.0	1	1	1	0	0.0	1	23	23	0	0.0	1	63
64	Western Reserve University School of Medicine	46	45	1	2.2	4	45	45	0	0.0	4	1	0	1	100.0	1	43	43	0	0.0	3	64
	OKLAHOMA																					
65	University of Oklahoma School of Medicine	16	16	0	0.0	3	16	16	0	0.0	3	0	0	0	0.0	0	13	13	0	0.0	1	65
	OREGON																					
66	University of Oregon Department of Medicine	17	17	0	0.0	3	13	13	0	0.0	2	4	4	0	0.0	2	7	7	0	0.0	2	66
	PENNSYLVANIA																					
67	Hahnemann Medical College and Hospital—H.	26	25	1	3.8	10	22	21	1	4.5	6	4	4	0	0.0	2	5	5	0	0.0	3	67
68	Jefferson Medical College	96	91	5	5.2	21	86	84	2	2.3	17	10	7	3	30.0	7	30	29	1	3.3	11	68
69	Temple University Department of Medicine	10	10	0	0.0	4	10	10	0	0.0	4	0	0	0	0.0	0	2	2	0	0.0	2	69
70	University of Pennsylvania School of Medicine	91	84	7	7.7	14	85	79	6	7.1	14	6	5	1	16.7	3	23	22	1	4.4	8	70
71	University of Pittsburgh School of Medicine	16	16	0	0.0	2	16	16	0	0.0	2	0	0	0	0.0	0	3	3	0	0.0	1	71
72	Woman's Medical College of Pennsylvania	17	14	3	17.7	5	14	12	2	14.3	3	3	2	1	33.3	3	2	1	1	50.0	2	72
	SOUTH CAROLINA																					
73	Medical College of the State of South Carolina	13	10	3	23.1	2	10	10	0	0.0	1	3	0	3	100.0	2	10	10	0	0.0	1	73
	TENNESSEE																					
74	Meharry Medical College	139	94	45	32.4	19	133	92	41	30.8	18	6	2	4	66.7	4	86	70	16	18.6	11	74
75	University of Tennessee College of Medicine	14	13	1	7.2	6	11	11	0	0.0	3	3	2	1	33.3	3	10	10	0	0.0	3	75
76	Univ. of West Tennessee Coll. of Med. and Surg.	20	9	11	55.0	4	18	8	10	55.6	4	2	1	1	50.0	1	6	3	3	50.0	1	76
77	Vanderbilt University Medical Department	39	36	3	7.7	15	35	33	2	5.7	12	4	3	1	25.0	4	22	22	0	0.0	1	77
	TEXAS																					
78	Baylor University College of Medicine	15	14	1	6.7	2	15	14	1	6.7	2	0	0	0	0.0	0	13	13	0	0.0	1	78
79	University of Texas Department of Medicine	44	44	0	0.0	4	43	43	0	0.0	3	1	1	0	0.0	1	40	40	0	0.0	2	79
	VERMONT																					
80	University of Vermont College of Medicine	30	28	2	6.7	8	26	25	1	3.8	5	4	3	1	25.0	4	19	19	0	0.0	4	80
	VIRGINIA																					
81	Medical College of Virginia	45	35	10	22.2	10	41	31	10	24.4	9	4	4	0	0.0	4	28	26	2	7.1	4	81
82	University of Virginia Department of Medicine	14	14	0	0.0	4	13	13	0	0.0	3	1	1	0	0.0	1	12	12	0	0.0	2	82
	WISCONSIN																					
83	Marquette University School of Medicine	8	8	0	0.0	1	8	8	0	0.0	1	0	0	0	0.0	0	7	7	0	0.0	1	83
	CANADA																					
84	Laval University Faculty of Medicine	2	0	2	100.0	2	1	0	1	100.0	1	1	0	1	100.0	1	0	0	0	0.0	0	84
85	McGill University Faculty of Medicine	11	8	3	27.3	7	6	4	2	33.3	5	5	4	1	20.0	4	3	2	1	33.3	3	85
86	Queen's University Faculty of Medicine	10	6	4	40.0	3	6	3	3	50.0	2	4	3	1	25.0	3	0	0	0	0.0	0	86
87	University of Manitoba, Manitoba Medical Coll.	1	1	0	0.0	1	1	1	0	0.0	1	0	0	0	0.0	0	0	0	0	0.0	0	87
88	University of Toronto Faculty of Medicine	3	3	0	0.0	3	0	0	0	0.0	0	3	3	0	0.0	3	0	0	0	0.0	0	88
89	Western University Faculty of Medicine	2	1	1	50.0	2	1	1	0	0.0	1	1	0	1	100.0	1	0	0	0	0.0	0	89
90	Foreign Colleges	45	28	17	37.8	14	7	5	2	28.6	6	38	23	15	39.5	13	1	1	0	0.0	1	90
91	Miscellaneous Medical Colleges	249	176	73	29.4	39	81	69	12	14.8	19	168	107	61	36.3	37	47	43	4	8.5	5	91
92	Nondescript Colleges and Undergraduates	174	111	63	35.8	7	....	....	....	....	..	....	....	....	....	..	....	....	....	....	..	92
93	Totals by States	3637	3154	483	13.3		2984	2710	274	9.2		479	333	146	30.5		2149	2033	116	5.4		93

TABLE D.—NONRECOGNITION OF MEDICAL COLLEGES

This Table, Based on Official Reports, Shows the Numerous Pitfalls to Be Avoided by Prospective Medical Students

Colleges marked (x) have been reported as not recognized by the states in the columns of which the letter appears

| Marginal Number | COLLEGE | Classification by Council on Medical Education † | 1 Alabama | 2 Alaska | 3 Arizona | 4 Arkansas | 5 California | 6 Colorado | 7 Connecticut | 8 Delaware | 9 Dist. of Columbia | 10 Florida | 11 Georgia | 12 Idaho | 13 Illinois | 14 Indiana | 15 Iowa | 16 Kansas | 17 Kentucky | 18 Louisiana | 19 Maine | 20 Maryland | 21 Massachusetts | 22 Michigan | 23 Minnesota | 24 Mississippi | 25 Missouri | 26 Montana | 27 Nebraska | 28 Nevada | 29 New Hampshire | 30 New Jersey | 31 New Mexico | 32 New York | 33 North Carolina | 34 North Dakota | 35 Ohio | 36 Oklahoma | 37 Oregon | 38 Pennsylvania | 39 Rhode Island | 40 South Carolina | 41 South Dakota | 42 Tennessee | 43 Texas | 44 Utah | 45 Vermont | 46 Virginia | 47 Washington | 48 West Virginia | 49 Wisconsin | 50 Wyoming | Reported Non-Recognition by State Licensing Boards: No. of State Boards reporting full recognition | No. of State Boards reporting college not recognized | Percentage of State Boards reporting full recognition | Marginal Number |
|---|---|---

| | | |

CONCLUDED FROM PAGE 1137

may show their skill in diagnosis and treatment, or for special percentage allowances for years of active practice. The total number of these candidates is diminishing each year as state licensing boards extend the provision for reciprocity, or for the endorsement, without further examination, of licenses granted by other states where a physician's qualifications are otherwise satisfactory. As a rule, the states which do not have reciprocal relations with other states (Florida, Massachusetts, Montana, Oregon and Washington, see Table H) examined the largest numbers of old practitioners.

TABLE E.—GRADUATES OF COLLEGES OF EACH STATE

Showing the Number Examined and Percentage of Failures

All Colleges of	Graduates								State Rank	
	Of All Years		Of 1914 to 1918		Of 1918 & Prev.		Of 1918			
	No. Examined	Per Cent. Failed	No. Examined	Per Cent. Failed	No. Examined	Per Cent. Failed	No. Examined	Per Cent. Failed	According to the No. Examined	According to Success at Examinations
Alabama	13	7.7	12	0.0	1	0.0	9	0.0	25	8
Arkansas	27	14.8	23	8.7	4	50.0	22	4.5	20	16
California	135	8.1	130	7.6	5	20.0	116	8.6	8	9
Colorado	13	0.0	10	0.0	3	0.0	8	0.0	25	1
Connecticut	6	0.0	5	0.0	1	0.0	5	0.0	27	1
Dist. of Columbia	68	5.9	59	3.4	9	22.2	33	3.0	11	4
Georgia	46	13.0	41	7.3	5	60.0	35	2.9	15	14
Illinois	559	10.3	502	8.8	57	24.6	325	3.7	1	11
Indiana	38	0.0	38	0.0	0	0.0	35	0.0	17	1
Iowa	39	2.6	32	0.0	7	14.3	31	0.0	16	2
Kansas	18	0.0	18	0.0	0	0.0	17	0.0	22	1
Kentucky	31	16.1	20	10.0	11	17.7	14	0.0	18	17
Louisiana	57	0.0	54	0.0	3	0.0	50	0.0	13	1
Maine	20	0.0	18	0.0	2	0.0	16	0.0	21	1
Maryland	111	10.8	99	10.1	12	16.7	49	2.0	10	12
Massachusetts	260	11.5	232	9.0	28	32.1	186	6.5	3	13
Michigan	113	7.1	104	6.7	9	11.1	99	5.1	9	7
Minnesota	49	0.0	47	0.0	2	0.0	45	0.0	14	1
Missouri	153	9.2	142	9.2	11	9.1	129	8.5	6	10
Nebraska	59	0.0	56	0.0	3	0.0	45	0.0	12	1
New York	518	13.5	493	12.7	25	28.0	366	9.0	2	15
Ohio	137	2.9	131	0.8	6	50.0	125	0.0	7	3
Oklahoma	16	0.0	16	0.0	0	0.0	13	0.0	24	1
Oregon	17	0.0	13	0.0	4	0.0	7	0.0	23	1
Pennsylvania	256	6.2	233	4.7	23	21.8	65	4.6	4	5
South Carolina	13	23.1	10	0.0	3	100.0	10	0.0	25	19
Tennessee	212	28.3	197	26.9	15	46.7	124	15.3	5	20
Texas	59	1.7	58	1.7	1	0.0	53	0.0	12	2
Vermont	30	6.7	26	3.8	4	25.0	19	0.0	19	6
Virginia	59	17.0	54	18.5	5	0.0	40	5.0	12	18
Wisconsin	8	0.0	8	0.0	0	0.0	7	0.0	26	1
Total Ex. in 1918	3140	10.2	2881	8.8	259	25.4	2098	5.3		

This table gives data relating to the medical colleges in each state. For example, it shows that, of all the medical schools in Massachusetts, 260 graduates of various years were examined by state boards during 1918, and of this number, 11.5 per cent. failed. Of the 232 who graduated in recent years (1914 to 1918 inclusive), 11.7 per cent. failed; of the 28 who graduated previous to 1918, 9.0 per cent. failed, and of the 186 graduates of 1918, 6.5 per cent. failed.

The ninth column gives the rank of each state group of colleges according to the number of graduates examined. The Illinois group of colleges leads, having 559 graduates examined by state boards during 1918, followed by New York with 518, Massachusetts with 260, Pennsylvania with 256 and Tennessee with 212.

The last column gives the rank of each state group of colleges according to the success of the graduates at the examinations. It is interesting to compare the figures of these two last columns. While the Illinois group ranks first according to the number examined it ranks eleventh in the success of its graduates at the examinations. While Tennessee ranks fifth as to the number examined, it ranks as the twentieth (the lowest place) in the success of its graduates at the examinations.

GRADUATES OF 1918 EXAMINED DURING 1918

Table C also gives the results for the graduates of 1918 who were examined during the year by the state boards, and shows that 2,149, or 59.1 per cent., of all candidates examined during the year graduated in 1918, including three who graduated from Canadian medical colleges. Educational statistics show that the medical colleges of the United States graduated 2,807 students last year (including 137 for whom diplomas were withheld until a year's internship in a hospital has been completed); therefore, 76.6 per cent. of all graduates in 1918 took examinations for license during that year. In some of the states, graduates in medicine are allowed to serve as hospital interns without first becoming licensed practitioners, which doubtless accounts for some of the remaining 23.4 per cent. Others probably enlisted as medical officers of the United States Army or Navy without first obtaining licenses. Of the 1918 graduates examined, 116, or 5.4 per cent., failed, as compared with 5.7 per cent. in 1917; 7.4 per cent. in 1916; 7.5 per cent. in 1915, and 12.7 per cent. in 1914. A steady improvement in recent years in the qualifications of medical graduates is apparent from these figures.

NONRECOGNITION OF MEDICAL COLLEGES

Table D shows for each college, from official reports, the states in which its diplomas are not given unqualified recognition. Nonrecognition is expressed by different terms in different states. Some boards list colleges as "not in good standing"; some give them as "not reputable"; in New York

TABLE 1.—RECOGNITION OF MEDICAL COLLEGES (BASED ON TABLE D)

	Number of Colleges
Recognized by all state boards	57
Not recogn'zed by 1 to 3 state boards	12
Not recognized by 7 to 18 state boards	12
Not recognized by 33 to 39 state boards	12
Total	93

full recognition is given only to colleges which are "registered," and in Michigan colleges are divided into groups, only those of Group 1 having full recognition. This table also shows the latest rating given to each college by the Council on Medical Education.

From the point of view of the prospective student who may be selecting a medical college, the facts in Table D are of extreme importance. There are 57 medical colleges now having complete recognition in all states. There are 12 others for which the few instances of nonrecognition are due to certain technicalities in state board requirements. If the student gets his medical training in one of the remaining 24 colleges, he will find on graduation that his diploma is not recognized in from 8 to 39 states!

Without the information published in Table D, these state board statistics would be not merely incomplete—*they would be actually misleading.* For example, 25 graduates of the Kansas City (Mo.) College of Medicine and Surgery were examined in 1918. Of these, 23 (92 per cent.) were examined by the Arkansas Board of *Eclectic* Medical Examiners, all of whom passed, while 2 were examined by the Eclectic Board of Connecticut, of whom 1 candidate failed. The statistics show only 4 per cent. of failures, which would make this college appear to belong among the better grade medical schools of the country. Quite different the picture, however, when the facts are known, as set forth in Table D, that this college is reported as not recognized *in its home state* and in 33 other states, and that for its very existence it depends on the acceptance of its graduates by the Eclectic boards of Arkansas and Connecticut! The figures obtained for the last several years indicate that neither the Kansas City College

TABLE 2.—SOURCE OF CANDIDATES REGISTERED BY EXAMINATION

Graduates of	1917		1918	
	Number	Per Cent.	Number	Per Cent.
Class A medical colleges	2,827	69.6	2,109	66.9
Class B medical colleges	813	20.0	544	17.2
Class C medical colleges	255[1]	6.3	288[2]	9.1
Miscellaneous medical colleges	124	3.1	185	5.9
Foreign medical colleges	42	1.0	28	0.9
Totals	4,061	100.0	3,154	100.0

1. Of this number 73 were graduates of osteopathic colleges licensed in California as "physicians and surgeons."
2. Of this number 98 were osteopaths, including 77 registered in California and 21 in Colorado.

of Medicine and Surgery nor the Arkansas Eclectic Board could exist without the other.

During the six years this table has been published, the percentages of fully recognized colleges were, respectively, 29.0, 32.3, 43.7, 65.6, 57.3 and 61.3. This shows a decided improvement in the medical colleges. Thirty-nine state licensing boards, to some extent at least, are utilizing their legal power to refuse recognition to medical colleges which do not meet the requirements in the respective states. In the other eleven states, however, and in the District of Columbia, this table indicates either that the practice acts do not give the boards authority to enforce a requirement of reasonable standards, or else that the boards are not exercising that authority. It is evident that if the graduates of low-standard medical colleges are not eligible for license in the majority of states, they will flock to the other ten which still grant them recognition. These ten states—Arizona, California, Idaho, Kansas, Massachusetts, Nevada, Oregon, Utah, Washington and Wyoming—and the District of Columbia, therefore, will remain the dumping ground for the output of low-grade medical colleges, until the licensing boards obtain the needed legal authority, and until they take action in the matter. Arkansas and Connecticut are also registering through their separate sectarian licensing boards graduates of medical colleges not recognized in the majority of other states. No examinations were held during the year by the Arkansas Homeopathic Board, and from the Florida Eclectic Board no report was received.

TABLE 3.—TOTAL RESULTS

Comparison with Previous Years

Year	All Candidates Examined				Recent Graduates		Older Graduates		Non-Graduates		Registered without Written Examination	Total Registered
	Examined	Passed	Failed	Percentage Failed	Examined	Percentage Failed	Examined	Percentage Failed	Examined	Percentage Failed		
1904	7035	5672	1363	19.3	4773	14.1	579	29.7	515	52.6	999	6671
1905	7170	5680	1490	20.8	6054	16.2	690	37.7	472	61.9	394	6074
1906	8035	6368	1667	20.7	6250	16.4	703	37.1	703	51.3	1497	7865
1907	7271	5723	1548	21.3	5922	15.1	675	27.7	674	60.6	1426	7149
1908	7770	6084	1686	21.7	6477	17.8	706	31.5	494	56.8	1276	7360
1909	7287	5857	1430	19.6	5891	15.4	958	30.0	438	54.1	1373	7230
1910	7004	5712	1292	18.4	5678	14.9	973	29.1	353	45.6	1640	7352
1911	6960	5578	1382	19.9	5685	17.2	945	29.4	330	38.5	1246	6824
1912	6879	5466	1413	20.5	5770	18.6	856	29.2	253	34.8	1257	6723
1913	6485	5236	1199	18.6	5390	16.5	225	32.1	251	37.8	1265	6501
1914	5570	4370	1200	21.6	4549	17.6	728	30.0	293	61.4	1427	5797
1915	5313	4486	827	15.6	4027	13.2	621	29.3	65	49.2	1386	5872
1916	4850	4123	727	15.0	4283	12.7	567	32.1	.....	.....	1338	5461
1917	4730	4061	669	14.1	4015	10.1	564	32.6	.....	.....	1362	5423
1918	3637	3154	483	13.3	2984	9.3	479	30.5	.....	.....	1031	4185

SOURCE OF CANDIDATES REGISTERED BY EXAMINATION

Of the 3,154 physicians registered by examination in 1918, 2,109, or 66.9 per cent., graduated from Class A medical colleges; 544, or 17.2 per cent., were from Class B medical colleges; and 288,[1] or 9.1 per cent., were from Class C medical colleges. Of all candidates examined, 213, or 6.8 per cent., came from medical colleges which have ceased to exist and from foreign medical colleges. A comparison of these figures with the results for 1917, as shown in Table 2, will be interesting.

1. Of this number, 98 were graduates of osteopathic colleges who were licensed as "physicians and surgeons" in California and Colorado.

TABLE F.—COLLEGES HAVING FORTY OR MORE EXAMINED

COLLEGE	Graduates of All Years					Graduates of 1914-1918					Graduates of 1913 and Previous					Graduates of 1918					Marginal Number, Table A
	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	
Loyola University School of Medicine	178	156	22	13.9	21	146	129	17	11.6	16	12	7	5	41.7	8	104	96	8	7.7	8	21
Rush Medical College (University of Chicago)	143	140	3	2.1	23	127	126	1	0.8	17	16	14	2	12.5	11	90	88	1	1.0	7	23
Meharry Medical College	139	94	45	32.4	19	133	92	41	30.8	18	6	2	4	66.7	4	86	70	16	18.6	11	74
Medical School of Harvard University	117	114	3	2.6	14	109	106	3	2.8	12	8	8	0	0.0	5	91	90	1	1.1	10	36
Columbia University College of Phys. and Surgs.	115	102	13	11.3	11	109	96	13	11.9	8	6	6	0	0.0	5	83	74	9	10.8	5	51
Tufts College Medical School	99	85	14	14.1	12	91	81	10	11.0	9	8	4	4	50.0	4	75	66	9	12.0	7	38
Jefferson Medical College	96	91	5	5.2	21	86	84	2	2.3	17	10	7	3	30.0	7	30	29	1	3.3	11	68
University of Pennsylvania School of Medicine	91	84	7	7.7	14	85	79	6	7.1	14	6	5	1	16.7	3	23	22	1	4.4	8	70
University and Bellevue Hospital Medical College	85	78	7	8.2	7	84	78	6	7.1	6	1	0	1	100.0	1	75	70	5	6.7	4	58
Chicago College of Medicine and Surgery	82	63	19	23.2	19	76	60	16	21.1	18	6	3	3	50.0	4	0	0	0	0.0	0	17
Northwestern University Medical School	74	73	1	1.4	14	67	66	1	1.5	9	7	7	0	0.0	6	63	62	1	1.6	8	22
Fordham University School of Medicine	72	62	10	13.9	3	70	61	9	12.9	3	2	1	1	50.0	1	54	51	3	5.6	2	53
University of Michigan Medical School	71	68	3	4.2	10	64	62	2	3.1	14	7	6	1	14.3	7	62	60	2	3.2	4	40
N. Y. Homeo. Med. Coll. and Flower Hospital	63	41	22	34.9	6	61	41	20	32.8	6	2	0	2	100.0	1	39	29	10	25.7	5	55
Johns Hopkins University Medical Department	60	57	3	5.0	16	58	55	3	5.2	16	2	2	0	0.0	2	33	32	1	3.0	10	32
St. Louis University School of Medicine	59	58	1	1.7	6	57	57	0	0.0	6	2	1	1	50.0	1	55	55	0	0.0	4	45
Tulane University of Louisiana School of Med.	57	57	0	0.0	8	54	54	0	0.0	5	3	3	0	0.0	3	50	50	0	0.0	4	30
University of Maryland School of Medicine	51	42	9	17.6	19	41	34	7	17.1	15	10	8	2	20.0	8	16	16	0	0.0	6	33
University of Minnesota Medical School	49	49	0	0.0	4	47	47	0	0.0	2	2	2	0	0.0	2	45	45	0	0.0	1	42
University of Illinois College of Medicine	47	46	1	2.1	14	35	35	0	0.0	10	12	11	1	8.3	7	26	26	0	0.0	3	24
Western Reserve University School of Medicine	46	45	1	2.2	4	45	45	0	0.0	4	1	0	1	100.0	1	43	43	0	0.0	3	64
Medical College of Virginia	45	35	10	22.2	10	41	31	10	24.4	9	4	4	0	0.0	4	28	26	2	7.1	4	81
Long Island College Hospital	44	41	3	6.8	4	42	40	2	4.8	2	2	1	1	50.0	2	33	31	2	6.1	2	54
University of Texas Department of Medicine	44	44	0	0.0	4	43	43	0	0.0	3	1	1	0	0.0	1	40	40	0	0.0	2	79
St. Louis College of Physicians and Surgeons	43	31	12	28.0	7	40	28	12	30.0	5	3	3	0	0.0	3	33	22	11	33.3	4	44
University of Buffalo Department of Medicine	42	35	7	16.7	6	37	31	6	16.2	4	5	4	1	20.0	4	25	22	3	12.0	1	59
Totals	1992	1771	221	11.1	....	1848	1661	187	10.1	....	144	110	34	23.6	....	1311	1225	86	6.5		

This table is interesting, since it gives data relating to the 26 larger medical colleges arranged according to the number of graduates examined. This allows of comparison between colleges having classes of nearly equal size. Loyola University School of Medicine had the largest number of graduates examined in 1918. The position was held by the Chicago College of Medicine and Surgery in 1913 to 1917, inclusive; by the University of Illinois College of Medicine in 1906, 1907 and 1912; in 1908 by Jefferson Medical College, and in 1909, 1910 and 1911 by the University of Louisville Medical Department. The first place from the standpoint of the number examined, however, does not always mean first place from the standpoint of scholarship. Note the percentage of failures. The highest failure percentages are for the New York Homeopathic Medical College, 34.9; Meharry Medical College, 32.4; St. Louis College of Physicians and Surgeons, 28.0; and the Chicago College of Medicine and Surgery, 23.2.

Of the 5 colleges having 100 or more examined, only 2 have failure percentages of less than 10, while the others stand out prominently with large failure percentages.

Of the 21 colleges having between 40 and 100 graduates examined, 13 had failure percentages of less than 10, 4 had failure percentages between 10 and 20 and 4 had failure percentages of over 20 per cent.

The average percentage of failures for these larger colleges for graduates of 1913 and previous years was 23.6; for graduates of 1914 to 1918 inclusive (recent graduates), 10.1; for graduates of 1918, 6.5, and for graduates of all years, 11.1. Of the 3,140 graduates of the 80 colleges in the United States which had graduates examined by state boards in 1918, these larger (32.5 per cent. of all) schools furnished 1,992, or 63.4 per cent., of the graduates examined.

STUDY OF TOTALS AND PERCENTAGES

A study of totals and percentages as compared with previous years is of interest. The total *examined* in 1918—3,637—is the lowest number of candidates examined for license in any year since the compiling of these statistics began (see Table 3). The number examined was 1,093 less than in 1917; 1,213 less than in 1916; 1,676 less than in 1915, and 4,398 less than in 1906, when 8,035 candidates were examined. Statistics regarding physicians licensed in the various states by reciprocity and by other methods are given in Tables H, I, J and K. By all methods—examination, reciprocity, under exemption, etc.—4,185 physicians were licensed during 1918, or 1,238 less than in 1917, 1,687 less than in 1916, and 3,680 less than in 1906, when 7,865 physicians were licensed.

Other deductions from the larger tables, presented in Tables E, F and G, are worthy of special study.

TABLE G.—PHYSICIANS EXAMINED BY STATE BOARDS, 1914 TO 1918, INCLUSIVE

STATES	1914		1915		1916		1917		1918		Totals			
	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Examined	Registered	Rejected	Percentage Rejected
Alabama	115	60	79	45	55	36	45	21	20	9	485	314	171	35.2
Alaska	4	0	6	0	11	1	2	0	1	0	25	24	1	4.0
Arizona	26	16	10	7	33	9	32	5	33	8	179	134	45	25.1
Arkansas	97	16	75	7	67	11	80	12	68	4	437	387	50	11.4
California	113	45	137	39	146	8	235	94	203	71	1091	834	257	23.5
Colorado	31	1	19	5	25	8	38	2	44	10	183	157	26	14.2
Connecticut	46	8	46	17	41	20	72	22	39	14	325	244	81	24.9
Delaware	18	0	13	0	13	2	14	0	10	1	71	68	3	4.2
Dist. of Columbia	47	12	51	13	33	14	26	7	37	4	244	194	50	20.5
Florida	106	37	83	25	68	18	44	12	21	8	422	322	100	23.7
Georgia	179	21	176	17	133	7	100	2	48	2	685	636	49	7.1
Idaho	19	2	23	1	29	0	29	2	16	0	112	107	5	4.5
Illinois	484	110	439	64	517	91	487	101	367	57	2717	2294	423	15.6
Indiana	48	2	49	3	49	4	39	2	43	6	245	228	17	6.9
Iowa	77	1	85	4	82	2	45	1	50	1	348	339	9	25.8
Kansas	37	4	29	4	32	1	24	3	29	0	154	142	12	7.8
Kentucky	59	7	83	7	66	10	68	16	40	2	358	316	42	11.7
Louisiana	76	24	69	21	68	10	44	13	50	6	381	307	74	19.4
Maine	54	11	63	6	25	2	33	1	27	3	225	202	23	10.2
Maryland	105	27	111	29	96	30	82	11	54	5	550	448	102	18.5
Massachusetts	226	97	238	65	166	40	219	42	228	18	1339	1077	262	19.6
Michigan	138	2	120	6	135	5	125	3	97	4	635	615	20	3.1
Minnesota	47	3	59	6	56	1	60	0	68	0	300	290	10	3.3
Mississippi	51	17	84	15	48	29	23	5	12	0	284	218	66	23.2
Missouri	195	33	200	22	161	13	166	12	143	21	966	865	101	10.4
Montana	58	25	48	16	38	14	43	24	20	7	293	207	86	29.3
Nebraska	66	6	70	6	52	0	63	0	44	1	308	295	13	4.2
Nevada	7	3	12	1	10	1	8	0	5	1	48	42	6	12.5
New Hampshire	36	6	6	1	10	0	6	0	4	2	71	62	9	12.7
New Jersey	41	13	71	8	72	10	26	6	16	1	264	226	38	14.5
New Mexico	8	2	5	0	5	1	...	...	2	0	23	20	3	13.0
New York	501	169	618	165	523	159	600	146	456	117	3454	2698	756	21.9
North Carolina	81	37	106	30	96	18	65	10	49	3	495	397	98	19.7
North Dakota	15	1	10	5	15	5	6	1	6	3	67	52	15	22.4
Ohio	146	18	149	3	182	5	185	4	142	6	840	804	36	4.3
Oklahoma	48	12	50	13	52	8	52	2	24	0	261	226	35	13.4
Oregon	76	42	56	30	38	17	37	7	35	7	345	242	103	29.8
Pennsylvania	101	22	208	24	233	33	241	12	168	22	1064	951	113	10.6
Rhode Island	27	5	26	6	27	7	22	1	13	4	138	115	23	16.7
South Carolina	68	37	53	36	53	24	37	29	17	12	366	328	138	37.7
South Dakota	25	4	25	0	18	2	18	1	14	0	107	100	7	6.5
Tennessee	149	205	101	4	128	20	167	10	103	19	906	648	258	28.5
Texas	152	11	136	11	90	13	119	5	82	2	621	579	42	6.8
Utah	13	3	21	1	15	0	11	0	10	1	75	70	5	6.7
Vermont	28	0	36	0	17	0	13	1	24	0	119	118	1	0.8
Virginia	98	10	100	8	99	8	64	4	50	6	447	311	36	8.1
Washington	92	5	75	14	48	4	57	7	59	7	368	331	37	1.0
West Virginia	51	4	70	7	58	2	45	7	16	4	264	240	24	9.1
Wisconsin	81	4	74	10	72	4	40	3	34	2	324	301	23	7.9
Wyoming	4	0	13	0	17	0	13	0	22	2	71	69	2	2.8
Totals	5,570		5,313		4,850		4,730		3,637		24,100			
Registered	4,370		4,486		4,123		4,061		3,154		20,194			
Rejected	1,200		827		727		669		483		3,906			
Per cent. rejected	21.6		15.6		15.0		14.1		13.2		16.2			

This table gives the number of candidates registered and rejected on examination by each state during each of the last five years. The last four columns give the totals for the five years and the percentage rejected by each state.

Three states registered over 1,000 candidates by examination in the five years, these being New York, Illinois and Massachusetts. Over 2,000 were registered in only two states, New York with 2,698 and Illinois with 2,294. Altogether 20,194 physicians were registered by examination in five years, an average of 4,039 each year.

The five highest percentages of rejections for the five years were in South Carolina, 37.7; Alabama, 35.2; Oregon, 29.8; Montana, 29.3; Tennessee, 28.5. Until 1916 Massachusetts, Oregon and Tennessee included nongraduates among those examined during the last five years, and for that reason would be expected to have higher percentages rejected. On the other hand, in several states the boards refused to recognize certain colleges and eliminated many candidates prior to the examination by a careful scrutiny of credentials, and as a result the percentages of failures at the examinations are lower than otherwise would be the case. For example, Ohio rejected only 4.3 per cent. of those who took their examinations, but graduates of sixteen medical colleges are not eligible for admission to the examinations. This table therefore should be studied in connection with Table D.

The lowest failure percentages were in Vermont, 0.8; Washington, 1.0; Wyoming, 2.8; Michigan, 3.1, and Minnesota, 3.3.

TABLE H.—REGISTRATION BY STATE BOARDS DURING THE YEAR 1918

STATES	By Examination			By Reciprocity	Without Written Examination or Under Exemption	Total Registered
	Graduates, 1914-1918	Graduates 1913 and Previous	Graduates of Nonedscript Colleges			
Alabama	19	1	....	6	....	26
Alaska	....	1	....	....	....	1
Arizona	10	23	....	....	....	33
Arkansas	57	11	....	13	....	81
California	124	2	77	139	....	342
Colorado	19	4	21	42	11	97
Connecticut	34	5	....	7	....	46
Delaware	9	1	....	14	....	24
District of Columbia	31	6	....	4	....	41
Florida	3	18	....	....	....	21
Georgia	46	2	....	24	....	72
Idaho	3	11	2	15	....	31
Illinois	351	16	....	25	....	392
Indiana	40	3	....	15	....	58
Iowa	47	3	....	29	....	79
Kansas	18	2	....	36	....	56
Kentucky	34	6	....	11	3	54
Louisiana	43	7	....	7	....	57
Maine	21	6	....	5	....	32
Maryland	52	2	....	19	....	73
Massachusetts	194	33	1*	....	....	228
Michigan	97	....	....	48	....	145
Minnesota	64	1	3*	29	....	97
Mississippi	12	....	....	3	....	15
Missouri	133	10	....	43	....	186
Montana	9	11	....	....	....	20
Nebraska	44	....	....	33	....	77
Nevada	3	2	....	11	....	16
New Hampshire	2	1	1	3	....	7
New Jersey	12	4*	....	85	....	101
New Mexico	1	1	....	4	27	33
New York	435	21	....	32	8	496
North Carolina	43	6	....	18	....	67
North Dakota	2	4	....	5	....	11
Ohio	134	8	....	33	....	175
Oklahoma	18	6	....	49	....	73
Oregon	18	17	....	....	....	35
Pennsylvania	155	13	....	4	....	172
Rhode Island	11	2	....	....	....	13
South Carolina	16	1	....	....	....	17
South Dakota	9	5	....	....	....	14
Tennessee	100	3	....	1	10	114
Texas	77	5	....	67	....	149
Utah	10	....	....	13	....	23
Vermont	22	2	....	1	....	25
Virginia	42	8	....	28	....	78
Washington	27	26	6	....	....	59
West Virginia	14	2	....	25	....	41
Wisconsin	29	5	....	20	....	54
Wyoming	16	6	....	6	....	28
Totals	2710	333	111	972	59	4185

* Nongraduates.

This table shows the total number registered during 1918 in each state by the various methods. The first three columns show those registered by examination: the first column showing the recent graduates registered, the second column the old practitioners (graduates of 1913 and previous years) and the third column shows a few nongraduates and osteopaths who were given licenses as physicians and surgeons. The fourth column shows the number licensed through reciprocity, by endorsement of other state licenses and by certificates of the National Board of Medical Examiners. The fifth column shows those licensed under various exemption clauses in the practice acts, such as because of national fame or by recognition of diplomas (New Mexico). California granted the physician's license to 77 out of 133 applicants who graduated from osteopathic colleges. Of these, 34 were given merely an oral examination.

It is interesting to note that as a rule states which registered large numbers through reciprocity, such as New Jersey, Oklahoma and Michigan, for example, examined very few old practitioners. The large registration through reciprocity in California is due to the liberal provision in the recent medical practice act providing for the recognition of licenses granted in other states. There were no reciprocal registrations reported for ten states, including Alaska.

The last column shows the total number of physicians registered by all methods in each state during the year. Only three states registered over 300 each, these being New York, 496; Illinois, 392, and California, 342. Seventeen states registered less than 50 each. The largest registration was 496 in New York, and the smallest was 1 in Alaska. The total registered by all methods was 4,185, a decrease of 1,238 below the total registered in 1917. This marked decrease is undoubtedly due to the war enlistments.

STUDY OF COLLEGES BY STATE GROUPS

Table E gives the results for the group of colleges located in each state. It shows what states are furnishing the largest number of physicians, and the failure percentages indicate the kind of training these colleges are furnishing, so far as may be judged from the results of state board examinations. Of the thirty-one states having medical colleges which grant degrees, nine furnished 100 or more candidates examined, four states furnished more than 200 each, and two furnished over 500 each. Illinois furnished 559 graduates, the largest number, followed by New York with 518, Massachusetts with 260, Pennsylvania with 256, and Tennessee with 212. Of the thirty-one groups of colleges, twenty-one had failure percentages of less than 10 per cent., eight had failure percentages between 10 and 20, and two—South Carolina and Tennessee—had 20 per cent. or more of failures. Other deductions are given in the legend to the table.

STUDY OF LARGER COLLEGES

Table F is also based on the three large tables, and gives the results of state board examinations as they affect the twenty-six largest medical colleges. Although these colleges represent 32.5 per cent. of the eighty medical colleges in the United States having graduates examined, they furnish 63.4 per cent. of all candidates for license coming from medical schools of the United States. This table shows, however, that the graduating of large classes by a medical college does not prove excellence of teaching, since three of the colleges having 100 or more examined have high failure percentages. The larger the college from the standpoint of students and graduates, the more serious is inferior teaching ability, as indicated by a high failure percentage. In fairness both to medical students and to the public, such schools should strengthen their teaching facilities or reduce the size of their classes.

TOTAL RESULTS FOR FIVE YEARS

Table G shows the number registered and the number rejected in each state for each of the past five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 17, 1918, p. 544, Table 11) shows—what would be expected—that the states having the largest number of medical graduates examined the largest

TABLE I.—CHARACTER OF PHYSICIANS LICENSED IN 1918

Marginal Number	STATES	By Examination					On Reciprocity or Credentials					Totals Registered from Medical Colleges in Class				Grand Totals	Marginal Number
		Medical Colleges in Class				Totals	Medical Colleges in Class				Totals						
		A	B	C	Misc.		A	B	C	Misc.		A	B	C	Misc.		
1	Alabama	16	4	0	0	20	2	1	0	3	6	18	5	0	3	26	1
2	Alaska	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
3	Arizona	11	4	1	17	33	0	0	0	0	0	11	4	1	17	33	3
4	Arkansas	7	28	26[1]	7	68	5	4	0	4	13	12	32	26[1]	11	81	4
5	California	37	58	105[2]	3	203	30	11	11	87	139	67	69	116[2]	90	342	5
6	Colorado	16	3	24[3]	1	44	14	4	0	35	53	30	7	24[3]	36	97	6
7	Connecticut	35	3	0	1	39	2	1	1	3	7	37	4	1	4	46	7
8	Delaware	6	4	0	0	10	7	0	2	5	14	13	4	2	5	24	8
9	District of Columbia	33	1	0	3	37	4	0	0	0	4	37	1	0	3	41	9
10	Florida	3	2	0	16	21	0	0	0	0	0	3	2	0	16	21	10
11	Georgia	28	8	1	1	48	8	3	0	13	24	46	11	1	14	72	11
12	Idaho	5	0	2	9	16	6	1	0	8	15	11	1	2	17	31	12
13	Illinois	188	159	9	11	367	11	2	2	10	25	199	161	11	21	392	13
14	Indiana	37	4	0	2	43	8	3	0	4	15	45	7	0	6	58	14
15	Iowa	40	7	1	2	50	8	6	4	11	29	48	13	5	13	79	15
16	Kansas	18	1	0	1	20	11	8	4	13	36	29	9	4	13	56	16
17	Kentucky	20	17	2	1	40	6	1	3	4	14	26	18	5	5	54	17
18	Louisiana	43	2	0	5	50	2	2	0	3	7	45	4	0	8	57	18
19	Maine	21	1	0	5	27	3	0	0	2	5	24	1	0	7	32	19
20	Maryland	50	2	1	1	54	7	1	1	10	19	57	3	2	11	73	20
21	Massachusetts	188	8	10	22	227	0	0	0	0	0	188	8	9	22	227	21
22	Michigan	96	0	1	0	97	22	3	0	23	48	118	3	1	23	145	22
23	Minnesota	67	1	0	0	68	18	4	0	7	29	82	5	0	7	94	23
24	Mississippi	12	0	0	0	12	0	0	0	3	3	12	0	0	3	15	24
25	Missouri	76	9	50	8	143	9	17	2	15	43	85	26	52	23	186	25
26	Montana	7	4	0	9	20	0	0	0	0	0	7	4	0	9	20	26
27	Nebraska	42	2	0	0	44	13	5	0	15	33	55	7	0	15	77	27
28	Nevada	1	3	0	1	5	2	0	0	9	11	3	3	0	10	16	28
29	New Hampshire	3	0	1	0	4	0	0	0	3	3	3	0	1	3	7	29
30	New Jersey	12	0	0	4	16	41	6	1	37	85	53	6	1	41	101	30
31	New Mexico	0	1	0	1	2	10	3	0	18	31	10	4	0	19	33	31
32	New York	402	39	7	8	456	15	5	0	20	40	417	44	7	28	496	32
33	North Carolina	42	2	1	4	49	4	4	0	10	18	46	6	1	14	67	33
34	North Dakota	2	1	0	3	6	1	0	0	4	5	3	1	0	7	11	34
35	Ohio	106	30	1	5	142	14	3	0	16	33	120	33	1	21	175	35
36	Oklahoma	3	16	2	3	24	7	10	3	29	49	10	26	5	32	73	36
37	Oregon	18	4	0	13	35	0	0	0	0	0	18	4	0	13	35	37
38	Pennsylvania	154	7	0	7	168	3	0	0	1	4	157	7	0	8	172	38
39	Rhode Island	10	1	1	1	13	0	0	0	0	0	10	1	1	1	13	39
40	South Carolina	16	0	0	1	17	0	0	0	0	0	16	0	0	1	17	40
41	South Dakota	9	2	1	2	14	0	0	0	0	0	9	2	1	2	14	41
42	Tennessee	30	58	14	1	103	10	0	0	1	11	40	58	14	2	114	42
43	Texas	60	14	3	5	82	11	16	18[4]	22	67	71	30	21[4]	27	149	43
44	Utah	9	1	0	0	10	5	1	1	6	13	14	2	1	6	23	44
45	Vermont	24	0	0	0	24	0	0	0	1	1	24	0	0	1	25	45
46	Virginia	41	3	3	3	50	13	4	0	11	28	54	7	3	14	78	46
47	Washington	26	9	10	14	59	0	0	0	0	0	26	9	10	14	59	47
48	West Virginia	6	9	0	1	16	9	4	0	12	25	15	13	0	13	41	48
49	Wisconsin	22	7	0	5	34	5	2	0	13	20	27	9	0	18	54	49
50	Wyoming	1	5	11	5	22	1	3	1	1	6	2	8	12	6	28	50
	Totals	2109	544	288	213	3154	347	138	54	492	1031	2456	682	342	705	4185	

1. Of the 81 physicians licensed in Arkansas, the Regular Board licensed by examination 7 Class A, 28 Class B and 7 miscellaneous graduates and by reciprocity 5 Class A, 4 Class B and 4 miscellaneous graduates, a total of 13. The Eclectic Board licensed by examination 26 Class C graduates. The Homeopathic Board reported no candidates licensed either by examination or by reciprocity.

2. Of the 105 graduates of Class C colleges licensed in California, 77 were graduates of osteopathic colleges which are not generally recognized as medical colleges by state licensing boards, and 34 of these were required to take only an oral examination. Altogether 133 osteopaths were admitted to the examination for licensure as physicians and surgeons and 77 were so licensed.

3. Of the 24 graduates of Class C colleges licensed in Colorado, 21 were graduates of osteopathic colleges, institutions inferior in most respects to Class C medical schools which are reported as not recognized in Colorado.

4. Texas licensed 3 Class C graduates by examination (although Class C colleges are reported as not recognized) and 18 Class C graduates (including 11 osteopaths) were licensed by reciprocity, a total of 21.

This table shows the classification of the colleges from which most of the physicians graduated who were licensed in 1918. Graduates of colleges which became extinct prior to 1907 who were examined, and all reciprocity licentiates who graduated prior to 1907, are unclassified and included under "miscellaneous" since it was in 1907 that the Council on Medical Education completed its first classification of all medical colleges.

It will be seen that five states accepted Class C graduates through reciprocity where they did not license any by examination. On the whole, however, 287 were licensed by examination where only 54 were registered through reciprocity.

By both examination and reciprocity, the largest numbers of Class C graduates were licensed in California, 116 (including 77 osteopaths); Missouri, 52; Arkansas, 26 (all by the Eclectic Board); Colorado, 24 (including 21 osteopaths); and Texas, 21. The largest numbers of Class B graduates were licensed in Illinois, 161; California, 69; Tennessee, 58; New York, 44; Ohio, 33, and Arkansas, 32.

Of all physicians licensed, 2,456, or 58.7 per cent., were graduates of Class A medical schools; 682, or 16.3 per cent., from Class B schools; 342, or 8.2 per cent., from Class C schools, and 705, or 19.2 per cent., from miscellaneous colleges.

TABLE J.—PHYSICIANS REGISTERED THROUGH RECIPROCITY BY STATE EXAMINING BOARDS DURING 1918

STATE BOARDS OF	Total Reg. by Recip., Fa. State	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Services*	Natl. Bd. Med. Ex.	Alaska, Hawaii, etc.	Foreign
Alabama	6										2																																						2			
Arkansas	13																2							3									1																					
California	139		4	3		2							16	7	13	1				1	2	2	6		10		6	5	2		1	15	1		5	2	3	6			2	1	2	1	3	7		4	2	2		1	
Colorado	42	1							1				6	1	3	1						1	2	1	4	1	7	1			2	1			1	1		2									1	1				
Connecticut	7									1													1								4																						
Delaware	14																			1	3										2							7								1						
Dist. of Col.	4																			2	1																									1						
Georgia	24	7												2						1	1									1		3			2							2		1	3		1				
Idaho	15				1																									1					4							4		5						
Illinois	25													5	2	1				1		2	1		5		1							1			1						1		2				2			
Indiana	15												4			3		1		1					2									2									1		1						
Iowa	29												12		1					1					4		5		1		1			1									1				2				
Kansas	36	1			1								9	1	4		1					1			10		2									4		1						1								
Kentucky	11					1			1					1								2			2											1								1			2					
Louisiana	7									2			2		1																	1														1					
Maine	5												1																							1									3							
Maryland	19				1				2				1					1				1			2							1							1		1				5		3					
Michigan	48				1				2				16	3	1		5			2			1		2		1							3				4			3	1		1		1	1				
Minnesota	29			1									7	1	1					1		3			1		3					1	3							1	1	1		1		3				
Mississippi	3																1																			1								1							
Missouri	43												11	1	4	11	3	1				1					1											2			7			1							
Nebraska	33								1		1		8		4	3						1		1	3							1			1	1		2		1								1	3	1	
Nevada	11					1							3		1				1						2		1											1				1									
New Hampshire	3																					3																														
New Jersey	85						1	4	1				2						2	7	3	1			1							42	1		1			15	1	1					1	1					
New Mexico	4			1											1																				2																
New York	32							7						2									1								13				3			3								3					
North Carolina	18										1		1	1						1		1		1	1		2							1								1			5		1				
North Dakota	5												1	1									2				1																									
Ohio	33	3			1								5	1	1	1	3			2		4	1		1							2			1			4				1				2	1				
Oklahoma	49			9							1				1	5	4							1	7		4			1				2						3	9						2				
Pennsylvania	4				1				1																					1			1																
Tennessee	1																															1																		
Texas	67			10			1		1		1		8	1		3	4					1	2	4	7		1	1							12								7			1		1	1			
Utah	13				1	3							2				1					2					2							1																
Vermont	1																														1																		
Virginia	28								4	1				1		1			1	1													1	6				5		1		4			1			1		
West Virginia	25										1		1	1		6	1			2					1											1			1				1			7				
Wisconsin	20				1						1		7		1					1		1	3									2			1					1									
Wyoming	6												2		2																																	1			
Totals	972	12	4	24	5	10	2	11	14	2	10		125	30	40	28	31	5	8	25	10	24	20	11	65	1	36	7	4	15	6	74	16	4	27	28	7	57	1	4	6	34	23	6	7	36	12	16	13	4	10	1	1	
Number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53

* U. S. Army, Navy and Public Health Service.

This table shows the number of physicians registered by each state through reciprocity during 1918. Read from left to right, it shows the total number of physicians registered through reciprocity in the state named and the number of such candidates coming from each of the states named at the top of the various columns. Read from above downward, the figures show the number of physicians who left the state named at the head of the column and went to each of the states named in the corresponding lines, and at the bottom the total number of candidates leaving the state to go elsewhere. For example, read from left to right, the table shows that Maine registered five candidates through reciprocity in 1918 and that, of these candidates one came from Illinois, one from Ohio and three from Vermont. Read from above downward the table shows that from Maine two candidates each went to the District of Columbia and New Jersey, one each to Delaware, Indiana, Nevada and Virginia, the total leaving the state to go elsewhere being eight. The line at the bottom shows in what states physicians who registered through reciprocity obtained their original licenses. From Illinois 125 candidates, the largest number, obtained their original licenses. New York follows with 74, Missouri with 65, Pennsylvania with 57 and Iowa with 40. The total number licensed by indorsement of licenses or certificates obtained in other states was 972.

TABLE K.—RECIPROCAL REGISTRATION IN FIVE YEARS (SHOWING WHAT STATES ISSUED ORIGINAL LICENSES)

STATE	Physicians Going from States Named During					Totals
	1914	1915	1916	1917	1918	
Alabama	1	1	4	8	12	26
Arizona	13	6	5	6	4	34
Arkansas	20	37	56	41	24	178
California	2	3	2	2	5	14
Colorado	25	15	8	14	10	72
Connecticut	1	3	1	0	2	7
Delaware	2	6	8	4	11	31
District of Columbia	22	18	20	16	14	90
Florida	2	4	2	1	2	11
Georgia	17	22	30	28	10	107
Idaho	5	1	5	4	0	15
Illinois	197	198	178	176	125	874
Indiana	44	43	27	22	30	106
Iowa	52	46	32	44	40	214
Kansas	42	39	33	32	28	174
Kentucky	35	48	40	44	31	198
Louisiana	10	16	16	13	5	60
Maine	11	12	13	8	8	52
Maryland	44	38	45	34	25	186
Massachusetts	7	19	22	20	10	78
Michigan	58	42	34	42	24	200
Minnesota	23	34	19	28	20	124
Mississippi	10	10	18	59	11	108
Missouri	98	104	93	84	65	444
Montana	3	1	1	1	1	7
Nebraska	37	50	28	49	36	200
Nevada	8	9	7	5	7	36
New Hampshire	3	4	11	7	4	29
New Jersey	19	22	17	16	15	89

STATE	Physicians Going from States Named During					Totals
	1914	1915	1916	1917	1918	
New Mexico	9	5	2	2	6	24
New York	101	73	84	83	74	415
North Carolina	7	13	17	9	16	62
North Dakota	5	6	4	13	4	32
Ohio	71	47	51	43	27	239
Oklahoma	22	28	26	17	28	121
Oregon	3	2	2	3	7	17
Pennsylvania	86	79	74	62	57	358
Rhode Island	1	2	1	3	1	8
South Carolina	2	12	7	7	4	32
South Dakota	4	7	3	3	6	23
Tennessee	42	34	65	67	34	242
Texas	23	12	15	20	23	93
Utah	8	6	16	13	6	49
Vermont	21	25	15	13	7	81
Virginia	40	30	36	42	36	184
Washington	15	10	12	10	12	59
West Virginia	33	36	25	24	16	134
Wisconsin	41	29	32	28	13	143
Wyoming	3	5	1	4	4	17
Alaska, Hawaii, etc.	2	....	1	1	1	5
U. S. Army	2	1	....	....	2	5
U. S. Navy	....	....	1	1	7	9
U. S. P. H. Service	....	....	....	....	1	1
Natl. Bd. of Med. Exam.	....	....	....	2	1	3
Canada	1	....	1	....	....	2
Foreign and Misc.	2	1	5	1	....	9
Totals	1355	1314	1271	1279	972	6191

This table shows that 6,191 candidates were registered through reciprocity during the last five years. Registration by reciprocity gradually increased from 1905 to 1914, since which time there has been a gradual decrease as the total of physicians licensed by other methods has decreased. This year the marked decrease in the total registered has been due largely to the war. A study of the totals for the different states shows that of the 6,191 registered during the five years 874, or 14.1 per cent., obtained their original licenses in Illinois. New York could easily lead Illinois but reciprocal relations have been established with only seven other states.

Seven states—Connecticut (regular board), Florida, Massachusetts, Montana, Oregon, Rhode Island, and Washington—do not have reciprocal relations and would not appear in this table except for the fact that some states, like California, Colorado, Delaware, New Hampshire, New Jersey and North Carolina will accept a physician's credentials if satisfactory, whether the state issuing the original license returns the favor or not.

number of physicians. New York leads, having examined 3,597 candidates in five years, followed by Illinois with 2,958. The five states having the next highest numbers are Massachusetts with 1,382, Pennsylvania with 1,278, Tennessee with 1,184, and Missouri with 1,027.

Total Registration in 1918

The tables thus far described have referred only to the results of *examinations* and to those registered on that basis. Table H, however, shows the total number who received licenses in each state, including those registered by examination, by reciprocity and under various exemption clauses. Altogether, 4,185 physicians were registered by all methods during 1918, as compared with 5,423 in 1917, 5,461 in 1916, 5,872 in 1915, 5,797 in 1914, and 7,865 in 1906. There has been a constant decrease in the totals licensed by all methods until 1915, when there was an increase of 79. The total registered in 1918 was 1,238 less than in 1917, 1,276 less than in 1916, and 1,687 less than in 1915. By reciprocity or under exemption clauses, 1,031 were licensed in 1918, as compared with 1,362 in 1917, 1,338 in 1916, 1,386 in 1915, and 1,427 in 1914. Only four undergraduates were registered during the past year.

TABLE L.—STATE REQUIREMENTS OF PRELIMINARY EDUCATION

State Examining Board of	One Year of College Work		Two Years of College Work	
	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates
Alabama	.....	....	1915-16	1919
Alaska	1914-15	1918	1918-19	1922
Arizona	1914-15	1918	1918-19	1922
Arkansas	1915-16	1919	1918-19	1922
California	1915-16	1919	.....	....
Colorado	1908-09	1912	1910-11	1914
Connecticut	1911-12	1915	.....	....
Delaware*	.....	....	.....	....
District of Columbia†	.....	....	.....	....
Florida	1914-15	1918	1918-19	1922
Georgia*	.....	....	1918-19	1922
Idaho*	.....	....	.....	....
Illinois	1915-16	1919	1918-19	1922
Indiana	1910-11	1914	1911-12	1915
Iowa	.....	....	1911-12	1915
Kansas	1910-11	1914	1918-19	1922
Kentucky	1914-15	1918	.....	....
Louisiana	1915-16	1919	1918-19	1922
Maine	1915-16	1919	.....	....
Maryland	1914-15	1918	1918-19	1922
Massachusetts†	.....	....	.....	....
Michigan	1914-15	1918	1918-19	1922
Minnesota	.....	....	1908-09	1912
Mississippi	1915-16	1919	1919-20	1923
Missouri*	.....	....	.....	....
Montana	1914-15	1918	1918-19	1922
Nebraska*	.....	....	.....	....
Nevada*	.....	....	.....	....
New Hampshire	1914-15	1918	1915-16	1919
New Jersey	1915-16	1919	1916-17	1920
New Mexico	1914-15	1918	1918-19	1922
New York	1917-18	1921	1918-19	1922
North Carolina	1914-15	1918	1918-19	1922
North Dakota	.....	....	1908-09	1912
Ohio*	.....	....	.....	....
Oklahoma	1914-15	1918	1917-18	1921
Oregon†	.....	....	.....	....
Pennsylvania	1914-15	1918	.....	....
Rhode Island	1914-15	1918	1918-19	1922
South Carolina	.....	....	1918-19	1922
South Dakota	1908-09	1912	1911-12	1915
Tennessee	1916-17	1920	1918-19	1922
Texas	1914-15	1918	.....	....
Utah	1913-14	1917	.....	....
Vermont	1913-14	1917	1918-19	1922
Virginia	1914-15	1918	1917-18	1921
Washington	1914-15	1918	1918-19	1922
West Virginia	1917-18	1921	.....	....
Wisconsin	.....	....	1915-16	1919
Wyoming†	.....	....	.....	....

* Require a four-year high school education or its equivalent.
† No fixed standard.
There are now forty states which have adopted requirements of preliminary education in addition to a standard four-year high school education. Of this number 32 now require the two year standard. These states, the number of college years required and the time the higher requirements became or become effective are given in the table.

Over 100 were registered by all methods in eleven states, over 200 in four, and over 300 in three, the largest numbers registered being 496 in New York, 392 in Illinois, and 342 in California. Of those licensed in California, 139, or 40.7 per cent., were registered by the endorsement of licenses granted by the boards of other states. California also registred as physicians and surgeons 77 graduates of osteopathic colleges, and 21 osteopaths were so licensed in Colorado.

Medical Training of Applicants Licensed in 1918

Table I is of special interest, since it shows for each state the numbers of candidates coming from medical schools rated in classes A, B and C, thereby indicating the character of the medical training of the candidates licensed during 1918. Of the 4,185 candidates registered, 3,154 were licensed by examination and 1,031 by reciprocity or on presentation of acceptable credentials. Those who graduated prior to 1907, when the first classification of medical colleges was completed by the Council on Medical Education, are included among those graduating from "Miscellaneous Colleges." Of the 3,154 candidates licensed by examination, 2,109, or 66.9 per cent., were from Class A schools; 544, or 17.2 per cent., were from Class B schools; 288, or 9.1 per cent., were from Class C schools, and 213 graduated prior to 1907 or came from foreign colleges. Among the graduates of Class C schools are included 98 graduates of osteopathic colleges who were granted the physician and surgeon's license in California and Colorado. Of the 1,031 candidates licensed by reciprocity, 492, or 47.7 per cent., graduated prior to 1907 and are, therefore, included among miscellaneous or unclassified colleges; 347, or 33.7 per cent., were graduates of Class A medical schools; 138, or 13.4 per cent., were graduates of Class B schools, and 54, or 5.2 per cent., were from Class C schools. Altogether, of the 4,185 candidates registered in 1918, 2,456, or 58.7 per cent., were graduates of Class A medical schools; 682, or 16.3 per cent., were from Class B schools; 342, or 8.2 per cent., were from Class C schools, and for 705, or 16.8 per cent., the colleges are unclassified.

As will be noted, the largest numbers of Class C graduates were licensed in California, with 116; Missouri, with 52; Arkansas, with 26; Colorado, with 24, and Texas, with 21. All of the Class C graduates registered in Arkansas were licensed by the Eclectic board.

Illinois registered 161 Class B graduates, the largest number, followed by California, with 69; Tennessee, with 58;

TABLE M.—ADVANCES IN STATE LICENSE REQUIREMENTS IN FOURTEEN YEARS

Requirement or Provision	States Having Provision for			States Still Having No Provision for
	1904	1919	Increase	
Preliminary Education—				
Any requirement	20	46	26	3[1]
A standard four-year high school education or higher	10	44	34	5[2]
One year or more of college work	0	40[3]	32	9[3]
Two years of college work as a minimum	0	32[3]	32	17[3]
That all applicants be graduates of a medical college	36	49	13	0
That all applicants undergo an examination for license	45	48	3	1[4]
Requirement of practical tests in the license examinations	1	16	15	33
Hospital intern year required	0	8[5]	8	41
Full authority by board to refuse recognition to low-grade colleges	14	44	30	5[6]
Boards refusing to recognize low-grade colleges*	5	42	37	7[7]
Reciprocal relations with other states	27	41	14	8[8]
Single boards of medical examiners	36	43	7	6[9]

* In three states, Arkansas, Connecticut and Florida, each of which has three separate boards, only the regular (nonsectarian) boards have refused recognition to low standard medical colleges.
1. District of Columbia, Massachusetts and Wyoming.
2. Idaho, Oregon and the states named in Footnote 1.
3. See Table I.
4. New Mexico.
5. Pennsylvania, 1914; New Jersey, 1916; Alaska, 1917; North Dakota and Rhode Island, 1918; Illinois, 1921, and Michigan, 1922.
6. District of Columbia, Idaho, Massachusetts, Utah and Wyoming.
7. California, Nevada and the states named in Footnote 6.
8. Arizona, Connecticut, Florida, Massachusetts, Montana, Oregon, Rhode Island and Washington. To this list should be added the outlying territories of Alaska, Canal Zone, Philippine Islands and Porto Rico, which have no provision for reciprocity.
9. Multiple boards still remain in Arkansas, Connecticut, District of Columbia, Florida, Louisiana and Maryland.

New York, with 44, and Arkansas, with 32. Arkansas, California, Oklahoma and Tennessee licensed more graduates of Class B and Class C colleges than of Class A graduates.

Only Class A graduates were registered either by examination or by reciprocity in Mississippi, South Carolina and Vermont.

It is evident that in several states, particularly, more care should be taken in the recognition of medical colleges, or better methods of examination should be adopted which will provide better safeguards against those not having adequate education.

Table J gives those registered without examination on presentation of satisfactory credentials, which included a license issued by some other state. This is commonly referred to as "reciprocity," which conveys the idea that the state which accepts a license of another must be granted the same courtesy by the state issuing the original license. The term does not always apply, however, since some state boards—Arizona, California, Colorado, Delaware, Maryland, New Hampshire, New Jersey and North Carolina, as examples—accept the physician's credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. Had not reciprocal relations been established by the thirty-seven states shown in Table J, 972 physicians—many of whom had been in practice for ten or more years—would have been compelled to undergo the ordeal of a second trying examination.

Table K shows in what states were granted the original licenses of those who were registered elsewhere under the reciprocity provision during the last five years. Of the 6,191 physicians licensed through reciprocity during the last five years, the largest number coming from any one state was 874, who obtained their original licenses in Illinois. Although New York has a larger number of medical college graduates each year than Illinois,[2] only 415 physicians obtained original licenses in New York and registered elsewhere through reciprocity in the last five years. This is accounted for by the fact that Illinois has reciprocal relations with twenty-two other states, while New York has established such relations with only seven.

Improved Standards of Licensure

Table L shows the states which have adopted one or two years of college work as a minimum standard of preliminary education for those who seek the license to practice medicine in those states. The first and third columns show, respectively, when the one year and the two years of premedical college work affects students matriculating in medical colleges, and the second and fourth columns give the years in and after which all applicants for licenses in the various states are affected by the increased requirements. This table shows the rapidity with which state board requirements of preliminary education have been advanced since 1908, prior to which no state was requiring more than a four-year high school education. As will be noted, there are now thirty-eight states which have adopted the higher standard, and thirty-two of these require as a minimum *two years* of premedical college work. It is understood that in every instance the one or two years of collegiate work must have included courses in physics, chemistry and biology.

In Table M the advance in standards of licensure is shown for all states since 1904. The most marked increase is in regard to the requirement of collegiate work in thirty-eight states as referred to in Table L. The next greatest increase (thirty-six) is in the number of states—now forty-one—which are refusing to recognize low-grade medical colleges. Although, as shown in the third column, marked improvements have been made in state requirements for licensure, nevertheless, as indicated by the last column, there is still room for further improvement. The greatest needs are for a wider adoption of the requirement of the hospital intern year, the standard of two years of premedical college work, and—a matter of more vital importance—a more general and larger use of practical tests in the examinations. The states in which the boards are making really effective use of such examinations are Illinois, Massachusetts, Minnesota, North Dakota, Ohio and South Dakota. They are being followed to a greater or less extent in a few other states.

2. See Table 11, J. A. M. A. 71: 544 (Aug. 17) 1918.

National Board of Medical Examiners

The National Board of Medical Examiners, which was organized in 1915, consists of fifteen members, including the Surgeon-Generals of the Army, Navy and Public Health Services, and one other representative of each of those services, three representatives of the state medical licensing boards, and six members appointed at large. Up to Dec. 31, 1918, six examinations had been held, as shown in the following tabulation:

Date of Examination	Where Held	Total Examined	Passed	Failed	Percentage Failed
Oct., 1916	Washington	10	5	5	50.0
June, 1917	Washington	12	9	3	33.3
Oct., 1917	Chicago	28	22	6	21.5
Jan., 1918	New York	20	18	2	10.0
Apr., 1918	Ft. Riley; Ft. Oglethorpe	23	18	5	26.1
Dec., 1918	Chicago; New York	16	15	1	6.3
Totals		109	87	22	20.2

Twenty-four medical schools were represented and the results were as follows:

College	Total Examined	Passed	Failed	Percentage Failed
University of California M. S.	1	1	0	0.0
University of Colorado S. of M.	1	1	0	0.0
Howard University Sch. of Med.	1	0	1	100.0
Emory University Sch. of Med.	1	1	0	0.0
Northwestern University M. S.	17	13	4	23.5
Rush Medical College	31	25	6	19.4
Indiana University Sch. of Med.	1	0	1	100.0
State Univ. of Iowa Coll. of Med.	3	2	1	33.3
Johns Hopkins Univ. Med. Dept.	8	6	2	33.3
University of Maryland Sch. of M.	1	1	0	0.0
Boston University School of Med.	1	1	0	0.0
Harvard University Med. School	6	6	0	0.0
University of Michigan M. Sch.	2	1	1	50.0
University of Minnesota M. Sch.	2	1	1	50.0
University of Nebraska Coll. of M.	1	1	0	0.0
Columbia Univ. Coll. of P. & S.	9	9	0	0.0
Cornell University Med. Coll.	4	4	0	0.0
Univ. & Bell. Hosp. Med. Coll.	1	0	1	100.0
Western Reserve Univ. Sch. of M.	1	1	0	0.0
Jefferson Medical College	2	0	2	100.0
University of Pennsylvania S. of M.	11	10	1	9.1
University of Texas Dept. of Med.	2	2	0	0.0
University of Virginia Dept. of M.	1	1	0	0.0
McGill University Faculty of Med.	1	0	1	100.0
Totals	109	87	22	20.2

Holders of certificates from the National Board of Medical Examiners will be registered without further examination in the following fifteen states:

Colorado	Iowa	North Dakota
Delaware	Kentucky	Ohio
Florida	Maryland	Pennsylvania
Georgia	New Hampshire	Rhode Island
Idaho	North Carolina	Vermont

When the permanence of the National Board of Medical Examiners is established and the high character of its examinations is more generally recognized, it is quite probable that its certificate will be recognized by the licensing boards of a larger number, if not of all states.

In Conclusion

In the gathering and publication of these statistics, the endeavor has been to give a fair presentation of facts, a knowledge of which is always beneficial. This annual presentation of the results of state license examinations has had a powerful influence on medical education and medical licensure in this country. We reiterate our acknowledgments to the state licensing boards for their ready cooperation and the complete reports which have been furnished. For the verification of all figures, the reports and data furnished by medical colleges have been of much value. We have no doubt that the information here published will be of service not only to the medical colleges and to the state boards, but also to the public, since the end-result is better qualified physicians.

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SATURDAY, APRIL 19, 1919

STATISTICS OF THE STATE BOARD EXAMINATIONS

We publish this week, for the sixteenth consecutive year, statistics based on official reports of examinations conducted by state medical boards, and of registrations by reciprocity and other methods. During these sixteen years the work has had the hearty support and cooperation of the executive officers of the various state licensing boards, who have furnished reports of their examinations. Every report has been carefully checked with alumni lists furnished by the deans of the medical colleges, and by this cross-checking, errors have been avoided; and when errors have been discovered, the state boards have been notified. Thus, not only have these statistics been made accurate and reliable, but also state board records have been corrected. We express our acknowledgments for the splendid cooperation of the officers of both the state licensing boards and the medical colleges by which the publication of these statistics has been made possible.

These statistics throw an important side light on both medical education and medical licensure. For each state they show the number and character of physicians admitted to examinations; the character of the colleges from which they graduated; the numbers who were registered and rejected, and the proportion rejected. The material is so arranged that the facts regarding any one college or any one state can be compared with those, respectively, of all other colleges and states. Figures show that in some states people are well protected against illiterate and incompetent physicians, while in others, in varying degrees, the opposite situation prevails. A glaring instance relates to Arkansas, where, although the regular board of medical examiners is adhering to reasonably high educational standards and methods of licensure, twenty-six physicians were licensed who could not meet its requirements. This was because of the existence of a separate board of eclectic examiners. This board examined twenty-three graduates of a nominally eclectic medical school, the Kansas City College of Medicine and Surgery, and licensed all of them, in face of the fact that this college is not recognized by the licensing boards of Missouri—its home state—and of thirty-four other states. And this has been going on for several years. Indeed, the reports indicate that neither the Arkansas Board of Eclectic Examiners nor the Kansas City College of Medicine and Surgery could exist without the other. It is true that a few graduates of this college were examined also by the Eclectic Board of Connecticut, but they were not so successful in that state in obtaining licenses. Arkansas and Connecticut, meanwhile, are two states which have not yet abolished their separate sectarian boards.

These statistics also call attention to the fact that during the last two years a few boards have examined and licensed osteopaths as physicians and surgeons. The objection to this procedure is not that they are osteopaths, but is based on the serious inferiority of their teaching institutions and their educational qualifications as compared with medical schools and physicians. Osteopathic colleges have been repeatedly inspected and, when measured by the same standards as were applied in the grading of medical schools, no one of them could rank higher than the lowest Class C medical college. Nevertheless, in Colorado, twenty-one osteopaths were licensed as physicians and surgeons by examination, and in Texas eleven were licensed by reciprocity, although the licensing boards of both states have reported that they do not recognize Class C medical schools. Texas also registered three graduates of Class C colleges by examination and seven by reciprocity, although they say they do not admit such graduates to their examinations. In California this year 133 osteopaths were admitted to the examination of physicians and surgeons, and seventy-seven, or about 60 per cent., were granted licenses, including thirty-four who were given merely an "oral, practical or clinical" examination.

When the collection of these statistics was begun by THE JOURNAL in 1903, returns could be obtained from only thirty-seven states, including four from which the returns were incomplete. The records could not be obtained for the other states for the very reason that records were not kept or were too imperfect to enable the boards to supply the information. This condition has been corrected, however, as evidenced by the fact that full and complete reports have been received from all state boards for the past several years.

Since 1905, the collection of the statistics became an important part of the work of the Council on Medical Education in its campaign for the improvement of medical education and licensure. The results in the improvements in medical licensure are set forth in the statistics.[1] Higher standards of preliminary education have been adopted; all states now require that applicants must have graduated from a medical school; all but one state, New Mexico, now require an examination of all applicants; a larger number of states have improved their examination by the use of practical

1. Table M, p. 1155.

laboratory and clinical tests; a larger number of states have obtained authority to refuse recognition to low-grade medical colleges and are making use of that authority; reciprocal relations between states have been widely extended; eight states require a hospital internship as an essential for the license, and all but a few states now have single boards of medical examiners.

On medical education the effect of these statistics has been even more pronounced. The attention of medical schools was called at once to the percentages of failures of their graduates at state licensing examinations, and better methods of teaching resulted. A knowledge of the fact that in certain states graduates of various colleges were not eligible for the license unless they had completed two years of collegiate work before entering on the study of medicine, induced a number of medical schools to adopt higher entrance standards which perhaps were not willing to do so voluntarily. The Council on Medical Education has utilized these statistics also in its efforts to improve medical teaching. A classification of institutions based on the percentages of failures coincided quite closely with the first classification prepared by the Council on Medical Education and based on actual inspections. Occasionally an institution obtained a lower percentage than its actual merits warranted, but no institution having a high percentage of failures was found worthy of being included among acceptable medical schools.

Briefly, these statistics show each medical school what improvements are essential if its graduates are to succeed in examinations of state boards; what state boards are requiring as a minimum of preliminary education, and in what states the boards are refusing to examine its graduates. To each state board these statistics show, by comparison with other states, the lines along which further improvements are needed in its educational standards and methods of examination. Constant publicity has led to a general improvement in educational standards and a greater uniformity in the methods of examination by all state boards. The result has been a lessened confusion in the licensing of physicians throughout the country, and correspondingly better safeguards for the public against the licensing of incompetent practitioners.

OBSERVATIONS ON THE FUNCTIONS OF THE BLOOD SERUM PROTEINS

The comparative richness of the serum in proteins is one of the striking facts in regard to the composition of the blood. It seems surprising, therefore, that so little is decisively known regarding the origin and the functions of these proteins in the body. Only a few years ago the most widely accepted view was that the products of protein digestion were regenerated into protein during or immediately after their absorption through the alimentary wall. So long as this belief was entertained, it followed as a logical consequence that the tissue cells were nourished, so far as their nitrogenous needs were concerned, from the blood proteins. In other words, the production of serum protein was a regular stage in protein assimilation.

The newer knowledge of the chemistry of digestion and the phenomena of the absorption of its products has made the older conclusion untenable. The end-products of the alimentary digestive processes in the case of proteins are amino-acids and, possibly, polypeptids which enter the circulation as such, passing directly to the tissues without preliminary synthesis to protein. The tissue proteins are different from the blood proteins. Furthermore, the blood serum proteins show minimal, if any, fluctuations during fasting or after heavy feeding, a fact suggesting that their content in the circulating medium is more or less independent of the immediate absorption of protein precursors. The fact that the content of proteins in the blood maintains a constancy cannot necessarily be taken as evidence, however, that the circulating proteins are not directly derived from the food proteins or play no part in the nutrition of the body cells. The content of blood sugar—a substance referable to the food intake—is remarkably constant, owing to the rapid regulatory transfer that takes place between food, tissues and blood.

Investigators[1] at the George Williams Hooper Foundation for Medical Research at the University of California Medical School have attempted to throw new light on the source of the blood serum proteins by following their regeneration after plasma depletion. By this is meant the withdrawal of whole blood and the replacement of the washed red corpuscles suspended in some modification of a protein-free medium like physiologic sodium chlorid or Locke's solution. The result was that when the plasma proteins were thus reduced experimentally to a low level (amounting to between 20 and 33 per cent. of normal), regeneration was a slow and difficult procedure, often occupying many days. If such depletion is assumed, as seems reasonable, to be a maximal stimulus for body production of serum protein, it appears from the results quoted that the body can manufacture them only in small amounts, even in an emergency. It is true that the regeneration is somewhat more rapid and complete on a meat or mixed diet, as compared with fasting. But, as the California investigators remark, when we follow the slow regeneration to normal in from five to ten days on a meat diet, we are fairly certain that these blood serum proteins cannot be actively concerned as transition products of protein metabolism standing between food proteins and body tissue proteins; other-

1. Kerr, W. J.; Hurwitz, S. H., and Whipple, G. H.: Regeneration of Blood Serum Proteins, I, Influence of Fasting on Curve of Protein Regeneration Following Plasma Depletion, Am. J. Physiol. **47**: 356, 1918; II, Influence of Diet on Curve of Protein Regeneration Following Plasma Depletion, ibid. p. 370; III, Liver Injury Alone: Liver Injury and Plasma Depletion: the Eck Fistula Combined with Plasma Depletion, ibid. p. 379.

wise the return to normal would be expected to take place within twenty-four hours or less.

Since these experiments give no evidence that the serum proteins may be in any way concerned as intermediary products between food protein and body tissue or parenchyma protein, it is logical to inquire anew as to the function of the serum proteins. Accumulating facts indicate that it is independent of the nitrogenous metabolism of the body. The blood serum protein level exhibits a remarkable stability even under unusual conditions of both health and disease. The experimental evidence acquired by Kerr, Hurwitz and Whipple[1] points to the liver as concerned in maintaining the normal level, just as this organ has been implicated, and apparently with good reason, in the production of the fibrinogen of the blood. If we add that the blood serum proteins probably assist in maintaining a desired viscosity of the blood and in preserving its neutrality, we remove them from the domain of nutrition into the realm of conjecture. Here lies a problem for the future.

THE FOXHALL FOSSIL HUMAN JAWBONE

In our Correspondence Department this week we publish a letter from J. Reid Moir of Ipswich, England, in regard to a fossil human jawbone found at Foxhall. As will be noticed, the object of Mr. Moir's communication to THE JOURNAL is to secure, if possible, some trace of the jawbone, which Mr. Moir believes to be in the United States. While not strictly medical, the subject of the antiquity of man, as revealed by fossil fragments such as this, is of special interest to most physicians. Prof. Frederick Starr of the Department of Anthropology of the University of Chicago is inclined to believe that this fragment probably is not of the Pliocene period.

The jawbone mentioned in Mr. Moir's letter caused considerable talk a half century ago. It is said to have been found in "coprolite" digging at Foxhall, near Ipswich, Suffolk, in 1855. It came into Dr. Collyer's hands and was shown by him at a meeting of the Ethnological Society at London in 1863. The famous scientists of the day examined it—Owen, Huxley, Murchison, Lyell, Busk. It was probably the jawbone of a woman well on in years. While admitting that it showed some curious features, none of these authorities gave special significance to the piece, and its antiquity was clouded. Collyer published an article with illustration in the *Anthropological Review* of 1867. His account leaves serious doubt as to the circumstances of its finding; his picture shows that the bone presents a pronounced chin eminence, a "modern" character, absent in the old Heidelberg and Neanderthal types, though present in Chancelade-Cro-Magnon.

A skeleton has recently been found, near Ipswich, under chalky boulder clay. Instead of presenting the Neanderthal type, it is "modern." A long article in the *Journal* of the Royal Anthropological Institute for 1911 discusses the find in detail. Dr. Arthur Keith has made a careful anatomic examination. The individual was about 5 feet 10 inches in height, had a brain of modern form and size, and relatively small jaws and teeth, "and all the features so like the men who live in England today that it seems impossible that a form which lived before the deposition of the chalky boulder-clay could have come down to modern times so little changed." It is this find and others of similar bearing that give present interest to this "coprolite jaw" of Dr. Collyer, for which search is being made. Do these recent finds, and the lost jaw, prove that a "modern type" of man, a *Homo sapiens*, has lived so long? We would expect "missing links" only—"intermediate forms"—so far back in time. To find a "modern type" here is serious. In the course of his discussion, Keith says:

> It will thus be seen that the Ipswich skeleton is not an isolated discovery. It is one of a great number, which to my mind clearly indicates that we have to seek for the evolution of the modern type of man—not in the Pleistocene (i. e., glacial) but in the Pliocene formations. With the evidence derived from the discovery of the human remains, the discovery of worked flints[1] must also be taken into account.

Professor Starr states that the three oldest specimens of human remains now recognized by science are those found at Trinil in Java, at (near) Heidelberg in Germany and at Piltdown in England. The Java fragments were described under the name of *Pithecanthropus*, and the type was considered a veritable "missing link." The Heidelberg jaw was unquestionably human, but notable for size, thickness and other characters. The find at Piltdown was the upper part of a skull of interestingly low type. The latest writers—like Osborn and Keith—consider all of these actually "human," but refer them to species different from *Homo sapiens*, to which all existing men belong. All of them show striking brute characters and accord well with what evolution suggests as to ancient types. All are of "glacial" age; Osborn, who is conservative in estimates, refers the Piltdown skull to the third interglacial stage (perhaps 100,000 years ago), the Heidelberg jaw to the second interglacial stage (perhaps 200,000 years ago), and the Trinil fragments to the first interglacial stage (perhaps 475,000 years ago). Osborn estimates the entire glacial period at 525,000 years. Back of it comes the Tertiary Age of the geologist, with the Pliocene as its closing period.

Apart from "eoliths," about which discussion now rages, no relics of human handiwork are recognized as older than the third interglacial stage. The rudest intentionally shaped implements and weapons known come from its gravels and other deposits. The oldest of them are perhaps 125,000 years old. We have no

1. These are claimed by their finder, the same Mr. Moir, as Pliocene; they are probably "eoliths," not intentionally shaped.

artefacts made by Heidelberg man or *Pithecanthropus*. These creatures may have used natural splinters of flint—"eoliths"—but we do not *know*. In the glacial deposits from the third interglacial stage onward remains of human beings—skullcaps, jawbones, other fragments, even complete skeletons—have been found. At least three types of men are represented during glacial times—Neanderthal (low and perhaps related with Trinil, Heidelberg and Piltdown), Chancelade-Cro-Magnon (much higher, with headform and body structure quite comparable with *Homo sapiens* and no doubt related to him) and Grimaldi (also of *Homo sapiens*, but distinctly "negroid," African in character). All three are "glacial," the Cro-Magnon and Grimaldi from relatively late glacial deposits, the Neanderthal from earlier. Still, the Neanderthal certainly lasted on until these more modern types had made their appearance.

But—to return to the present—let it be remembered that the Foxhall human jaw bone is possibly somewhere in this country and that the immediate object is to find it.

THE FOOD CRISIS IN GERMANY

When Germany began to realize her isolation as the result of the blockade, she loudly proclaimed the impossibility of success in the direction of an "Aushungerungsplan"—a scheme to deprive her of indispensable food supplies. There is no occasion at present to assume that there was any pronounced impairment of health on the part of the population of the Central Empires because of food shortage in the earlier months of the great struggle. Accumulated resources were still available, and neighboring neutrals were willing and able to exchange food products for money or commodities. As the months of fighting passed into years, however, the need of strict rationing of the population became an open secret. Lack of fats was freely admitted. It was openly attested that thousands of civilians were declining in body weight; yet this was ostensibly hailed as a symptom favorable rather than otherwise to well being. The doctrine of "physiologic economy in nutrition" was preached with seemingly timely emphasis on its alleged advantages to health.

A prolonged period of enforced privation has given an exceptional opportunity to test the validity of some of the prophesies, and to learn what rations kept scant, far beyond the expectation of those who participated in them, really mean for great masses of people. During our own days of conservation, the possible distinction between prudent living and reduced food supply was not always kept clear. Overweight may well represent an unfavorable life insurance risk; yet this fact does not place the stamp of wisdom on underfeeding.

Among the reputed benefits besides the reduction of undesirable corpulence ascribed to the strict rationing of the German population were reports of reduction in gastro-intestinal disorders owing to more frugal living. The decrease in meat consumption was said to have caused gout to disappear almost completely. Such consequences might well be hailed as personal advantages. However, the veil of strict censorship behind which the internal affairs of Germany have long been hidden is now being lifted. Professor Rubner of Berlin, who has long been a student of the nutrition of the people, has recently pictured the state of affairs as he saw them.[1] He has proclaimed that the dangers threatening Germany were at first utterly underestimated. The awakening came with the never-ending restrictions in the allowance of food, which grew scantier as time progressed until every one began to realize through his own deprivation what the blockade really signified. The securing of provisions from friendly or conquered states proved, says Rubner, to be like a drop of water on a hot stone. The turning point in nutrition came in the middle of 1916. From that time on, the people were deprived of the important foods, or could secure at most only small quantities. Meat, eggs, milk and butter practically disappeared, with the result that the guaranteed portion for the adult was ultimately reduced to one half or even one third of the former allowance. The year 1918 brought no halt along the road to decline; on the contrary, it necessitated a further restriction of meat, and renewed decrease in the milk allowance for children and invalids.

Current Comment

TESTING A PHYSICIAN'S QUALIFICATIONS FOR PRACTICE

The scheme generally adopted in this country to ascertain whether a physician is properly qualified to practice medicine is duplex in character. It requires, first, that the applicant submit evidence of graduation from a "reputable" or "recognized" medical school; and, second, that he pass a state examination. The reputability of a medical school may be judged by an investigation of its admission requirements; the manner in which these requirements are enforced; the qualifications of its teachers; the character of the teaching methods and of the facilities for teaching—in brief, the equipment and facilities of the college for furnishing a training in accordance with present-day medical knowledge. Graduation from a recognized or reputable medical school is evidence that the applicant's medical training is complete, and implies that the faculty of the medical school considers him qualified to practice medicine. In effect, therefore, the examination is a supplementary test of the candidate's fitness to practice, and is not of vital importance in states in which only graduates of high grade medical schools are examined.

1. The facts here reported are quoted from the Berliner klinische Wochenschrift, Jan. 6, 1919, p. 2.

But in those states in which this is not the case, the examination becomes of extreme importance, and should be made especially thorough, since here it is the sole means of deciding whether or not the candidate is qualified to treat the sick.

REGISTERING OSTEOPATHS AS PHYSICIANS AND SURGEONS

As shown elsewhere this week, the licensing boards of three states not only have admitted graduates of osteopathic colleges to the examinations for physicians and surgeons, but also have licensed a decidedly generous proportion of them. It is interesting to note that in these three states osteopaths have been appointed as members of the medical licensing boards, California and Texas each having two such members and Colorado one. There is no objection to admitting osteopaths to the physicians and surgeons' examination if the test of their qualifications is fully equal to that for physicians and surgeons. But such is not the case. While they may be examined, they are not required to be graduates of any medical school, much less one that is recognized. Neither is the examination of such character as to test their knowledge of and ability to use scientific methods of diagnosis, much less of the prevention and treatment of disease. It is well known that osteopathic colleges do not enforce as high requirements for admission, nor possess as well equipped laboratories, nor have teachers as efficiently trained in scientific medicine as even Class C medical schools, much less those in Classes B and A. As a matter of fact, two of the states, Colorado and Texas, refuse to recognize Class C medical schools, but do admit graduates of osteopathic schools to the examination for physicians. To ascertain the competence of such candidates to practice as physicians, the duplex method of licensure referred to in the preceding comment should be adhered to. If osteopaths wish to limit themselves to their peculiar and restrictive form of treatment, let them appear before the public in their true light; if they want to appear before the public as physicians and surgeons and to assume all the responsibilities as such, let them be measured by the same standards and submit to the same tests.

LOW TYPHOID RATE IN RICHMOND

We learn from the Richmond authorities that, owing to an error in transcription in the health office in that city, an incorrect figure for the number of deaths was sent THE JOURNAL, so that the 1918 rate for Richmond should be 7.5 instead of the high figure given in the annual report for 1918. We make this correction with the greater pleasure since in the past few years Richmond has made great efforts to reduce its typhoid rate, and has succeeded better than any other Southern city. This is the second successive year in which the rate has remained remarkably low, and we congratulate that city on its admirable record. We regret the error in the annual summary, but it is plainly impossible for THE JOURNAL to go back of the figures sent it and make a special investigation in each case. Those conversant with the local situation in certain cities are sometimes critical of the figures presented in THE JOURNAL. We have, for instance, received a number of intimations that the very low typhoid rate reported for one of our great cities in the past three years does not quite reflect true conditions in that city. It is not believed, however, that it is the province of THE JOURNAL to go behind the figures sent it by official agencies. For one thing, the necessity for promptness in publication would forbid any attempt at special investigation in particular cases. None the less, we regret that Richmond, a city with such an excellent typhoid record, should have suffered by a clerical error, although it was none of THE JOURNAL'S making. We gladly repeat our statement about Richmond in the sixth annual report (for 1917): "Typhoid reduction in the past ten years reflects great credit on the health administration."

THE WALLINGFORD OF MUS MUSCULUS

"One thousand mice in a year should return $25,000," says the Laboratory Supply Company of Philadelphia. A further reading of the pamphlet in which this statement occurs discloses that an outfit consisting of three female mice, one male, and a hutch completely equipped, together with a book of instructions, can be had from the Laboratory Supply Company—for $10. This outfit should yield, by the laws of nature, fifteen litters a year, or 300 new mice, worth $75. As one of the testimonials in the booklet puts it: "Mice are certainly some breeders. Can hardly stop them after they get started." Allowing $5 for expense, since mice eat very little, we have $60 profit, or 600 per cent., on the original $10 investment. This attractive proposition is exceeded only by the cat and mouse farm of proverbial fame. In introducing the general subject the Laboratory Supply Company informs us that:

> Because of the extreme shortage of white mice thousands of men, women and children, as well as our soldiers, died during the last year. Many of these deaths, in fact a large percentage of them, could have been averted had mice been available.

Then we read in a letter accompanying the booklet the following important scientific statement:

> Spanish influenza antitoxine would have greatly retarded the spread of that terrible disease and would have saved thousands of lives, but enough small animals were not available to make the antitoxine in sufficiently large quantities. In making the different antitoxines some small animals are absolutely needed to prepare, test and standardize the antitoxine. No antitoxine can be used before it is properly tested and standardized. Guinea Pigs are used to test and standardize the different fever antitoxines such as scarlet, typhoid and diphtheria, while White Mice are used for pneumonia and influenza antitoxines.

The pamphlet and letter from which the quotations are taken evidently have been received by many physicians, since many were forwarded to THE JOURNAL. Physicians do not appear to have fallen for this investment to any great extent. Of course, to any one familiar with laboratory methods or with modern medical practice, the absurdity of the claims is appar-

ent. White mice are used only to a limited extent in immunologic, experimental work, and beyond this primarily for typing pneumococci and streptococci. Furthermore, there exist methods for typing pneumococci without the use of laboratory animals. The statement of the Laboratory Supply Company that the demand for white mice is enormous and that "there are enormous profits for each of those who respond to this appeal" are not in accord with the facts. Their offer to accept war bonds and war savings stamps in return for breeding outfits is on a par with similar offers by promoters of dubious speculations.

WATER-BORNE TYPHOID STILL OCCURS

The recent water-borne typhoid outbreak in Herkimer, N. Y.,[1] affords another illustration of the importance of controlling and safeguarding water purification by chlorination. It cannot be emphasized too often, first, that some waters are much more difficult than others to treat by the chlorination process, and secondly, that it is not safe to entrust the supervision of any water chlorination to unskilled subordinates. The hand of a responsible expert must be kept on the operation all the time. Jordan and Irons[2] have shown in their report on a typhoid outbreak at Quincy, Ill., how well-intentioned deviations in the amount of chlorin applied might result disastrously. There is other evidence to the same effect, notably in an outbreak in Milwaukee in 1916. As regards the Herkimer epidemic mentioned above, we read that an emergency supply was resorted to in time of water scarcity, and that "while an attempt was made to sterilize this emergency supply by means of liquid chlorin, the arrangement of the apparatus was such that the chlorin was not properly applied." As a result of this and further omission of and interference with the chlorination process, contaminated creek water gave rise to about 155 cases of typhoid. It must be repeated that water purification is not an automatic affair and does not function without guidance. Especially must highly contaminated water be very cautiously dealt with if dependence is placed on chlorination.

THE GOLDENROD AND HAY-FEVER

With the recurrence of the hay-fever seasons, physicians will be interrogated as usual regarding the "dangers of flowers" and other alleged noxious factors popularly supposed either to contribute to the distress of hay-fever victims or to threaten the unattacked. The knowledge that plants play a decisive part in the etiology of the disease has become widespread. Nevertheless a wider appreciation of the origin of the pollens for which a relationship to hay-fever seems to be established ought to be encouraged. Scheppegrell[3] has formulated the following characteristics of hay-fever plants: They are wind pollinated, are very numerous, the flowers are inconspicuous, without bright color or scent, and the pollen is formed in great quantities. In the spring season now at hand the chief offenders are the pollens of grasses in all sections. The fall hay-fever in the Northern, Eastern and Southern states[4] is for the most part attributed to the pollens of the ragweeds (*Ambrosiaceae*), these being replaced in the Pacific and Rocky Mountain states by the wormwoods (artemisias). Scheppegrell[5] seems to have proved an alibi for goldenrod. Its flowers are insect pollinated, have bright colors and scent, and the pollen is not formed in large quantities. In fact, according to Scheppegrell, it is never found on atmospheric pollen plates. Furthermore, goldenrod continues to bloom for some time after the close of the hay-fever season. It will be hard to convince many victims of the disease that Scheppegrell is correct in his views regarding the goldenrod; but if these observations are confirmed, a beautiful flower will be saved from undeserved disrepute.

1. Horton, Theodore: Water-Borne Typhoid Fever Outbreak in Herkimer, N. Y., Pub. Health Rep. **34**: 597 (March 28) 1919.
2. Jordan, E. O., and Irons, E. E.: J. Infect. Dis. **13**: 16 (July) 1913.
3. Scheppegrell, W.: Hay-Fever and Its Prevention, Pub. Health Rep. **31**: 1907 (July 21) 1916.
4. Scheppegrell, W.: Hay-Fever: Its Cause and Prevention, J. A. M. A. **66**: 707 (March 4) 1916.
5. Scheppegrell, W.: Hay-Fever and the National Flower, Science **49**: 284, 1919.

Association News

THE ATLANTIC CITY SESSION

Tournament to Be Held by the American Medical Golfing Association

The American Medical Golfing Association will hold its 1919 Tournament, June 9, on the links of the Atlantic City Country Club. Luncheon will be served at the club house from 12 to 2, and the annual golf dinner and meeting of the association will be held that evening. The tournament will be conducted in a manner similar to that followed last year. Section captains will be appointed and will be expected to get out their respective teams. Entries will be made in the order of their receipt, and each team will be closed when the capacity of the course (twenty-five foursomes) is reached. They will be closed at the office of the secretary, under any conditions, May 30.

Fellows desiring to be entered will appreciate how important it is for the Atlantic City Committee on Arrangements to know as early as possible the number that will participate. Accordingly, Fellows are urged to be entered and to inform their golfing confrères of this tournament, that they also may submit applications as promptly as possible.

Any Fellow of the American Medical Association becomes automatically a fellow of this association on acceptance of its by-laws and the payment of the enrolment fee ($2). This enrolment fee is for the general funds of the association and may be paid at any time.

Those desiring further information should address Dr. Will Walter, Secretary-Treasurer, 1414 Chicago Avenue, Evanston, Ill.

Ample Hotel Accommodations Assured

The Local Committee on Arrangements assures those who plan to attend the coming annual session—the Victory Meeting—of the Association, to be held in Atlantic City next June, that there are ample and excellent hotel facilities at reasonable rates available for all. The chairman of the Subcommittee on Hotels, Dr. David B. Allman, or the chairman of the Central Local Committee on Arrangements, Dr. Emery Marvel, will gladly place Fellows in communication with hotel managers. The following hotels, located on the avenues indicated, offer accommodations on the American plan at rates for a single person varying from

$2 to $4 a day and upward, in accordance with the accommodations provided. The rates offered at any of these hotels may be obtained by addressing the hotel at Atlantic City.

Oriental Avenue: Touraine, Glenside.
New Jersey Avenue: Pierrepont.
St. Charles Place: Loraine.
Virginia Avenue: Blackstone, Berkshire Inn, Whittier, New Florence, Victor Hall, Majestic, Grand Atlantic, Calvert, Jackson, Bothwell, Wiltshire, Sothern, Morton, Raymond, Absecon, Shoreham, Albemarle.
Pennsylvania Avenue: Holmhurst, Upton, St. Clare.
North Carolina Avenue: Colonial.
South Carolina Avenue: DeLancey-Lakewood, Silverside, Radnor, Watkins, Mullica, Trexler, Princess, Iroquois.
Ocean Avenue: Bon Air, Kingston.
Tennessee Avenue: Elberon, Continental, Howard House, Greater Pittsburgh, Kenwood, Kenderton.
St. James Place: Flanders, Elwood, Devonshire, Thompson.
New York Avenue: Netherlands, Belleville, Chester Inn.
Kentucky Avenue: New Clarion, De Ville, Monticello, Wellsboro, Westminster, Silverton, Richmond, Carnix.
Illinois Avenue: Craig Hall.
Park Place: Glaslyn-Chatham, Cheltenham-Revere, Runnymede.
Michigan Avenue: Pennhurst, Arlington, Edison.
Arkansas Avenue: Emmett.
Missouri Avenue: Worthington.
Pacific Avenue: Arondale, Channel.
Arctic Avenue: Wright's (colored), Ridley's (colored).

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending April 11, the Medical Corps contained 19,008 officers, a decrease of 310 from the previous week. The Medical Reserve Corps contained 1,555 officers. The total number of medical officers discharged since the beginning of the war is 14,533.

Distinguished Service Cross to Gen. T. H. J. C. Goodwin

The commander in chief of the American Expeditionary Forces announces that pursuant to authority granted by cable A-2830 he has awarded the Distinguished Service Cross to Lieut.-Gen. Sir T. H. J. C. Goodwin, G.C.B., C.M.G., director-general, army medical service. It will be remembered that General Goodwin was sent to this country as liaison officer, following the entrance of this country into the war, and spoke before many medical organizations.

The Recall Appears

The first issue of the *Fort Sheridan Recall*, a newspaper issued for the benefit of the wounded at General Hospitals Nos. 28, Fort Sheridan, and 32, Chicago, appeared, April 9. The new journal is similar to those already in operation in Washington, New York and Detroit, and contains news of the various hospitals in the Central Department. A printing plant is being installed at Fort Sheridan so that patients in U. S. General Hospital No. 28 may learn the printing and allied trades.

Courses for Student Nurses at Civilian Hospitals

Arrangements are being made by the Surgeon-General of the Army with civilian hospitals for courses of instruction for student nurses. To be eligible for the diploma of the Army School of Nursing, students must complete the courses satisfactorily in both classes of hospitals. The arrangements with the civilian hospital training schools provide that the students in the Army School of Nursing shall be given board, lodging, laundry and such allowance, if any, as is given their own students. Some schools do not provide an allowance. During the period of their affiliation the monthly allowance of $15 from the Army will be discontinued.

Weekly Bulletin, A. E. F.

(*March 17, 1919*)

HIGH DIPHTHERIA INCIDENCE AND DEATH RATE

This number of the *Bulletin* is devoted largely to two epidemics of diphtheria occurring in Base Section 2 and in Base Hospital No. 54. In Base Section 2 there were 166 cases. In summarizing conditions, the chief surgeon states that the late diagnosis due to indifferent examination and lack of pains to obtain confirmatory cultures, failure to give antitoxin promptly on clinical diagnosis and have the diagnosis confirmed later, insufficient initial dose and unsuitable use of small divided doses seem to have been chiefly responsible for the deaths. It is stated that of 96 cases in which full reports were made, 56 developed so long after admission to hospital that it is probable the infection was acquired in the hospital.

WEEKLY REVIEW

The venereal disease rate has dropped to 30.97 from 36.69, due to substantial reductions in the rates in all sections and districts, except Base Sections 4 and 6 and in the First and Third Armies, where increases were recorded. Apparently this reduction is largely due to decreased exposures, since the percentage of failures to take prophylaxis is higher than it was a week ago.

There have been reductions during the past week in all communicable diseases, except paratyphoid fever. One case of smallpox was recorded in the Second Army. The total number of communicable diseases reported during the week is less than at any time since the signing of the armistice.

Interallied Congress of Aviation Medicine

Rome, Feb. 15-19, 1919

An interallied congress of aviation medicine convened in Rome, February 15 to 19, inclusive. The various countries concerned were thus represented:

Great Britain: Lieut.-Col. Martin Flack, R. A. F. M. C.; Dr. Henry Head; Lieut.-Col. Georges Dreyer, R. A. M. C.; Lieut.-Col. Birley, R. A. F. M. C. (absent through illness); Capt. D. Ranken, R. A. F. M. C. (interpreter).

France: Capt. Georges Guillain; Capt. J. LeMaire; Lieut. L. Ambard; Lieut. D. Garsaux; Lieut. R. Gaumont, artillery observer, secretary.

Italy: Major-Gen. R. Bressanin; Lieut.-Col. C. Gradenigo; Lieut.-Col. Arturo Cascarino; Major Amedo Herlitzka; Major Alberto Agazzotti; Prof. Gino Galeotti.

Belgium: Capt. P. Voncken, Service de santé.

United States: Col. Thomas R. Boggs, M. C.; Col. W. H. Wilmer, M. C. (absent through illness); Lieut.-Col. L. G. Rowntree, M.C.

Captain Samarini, American Red Cross, acted as interpreter. Professor Gradenigo of Italy was elected president of the congress.

SUBJECTS DISCUSSED

The program was arranged by the Italian delegation. The following subjects were discussed:

1. Considerations concerning the admission of candidates as pilots: (*a*) The necessity of the psychophysiologic examination and its organization. Great importance was attached to the question of civil and commercial aviation. In order to secure pilots physically and temperamentally fit it was deemed advisable to have psychophysiologic examinations for all candidates for aviation, military or civil. Perfect somatic health should be insisted on, and if possible perfect sensory functions. Absolute physical fitness should be demanded of all civil pilots, while for military aviation each country must determine the limits for admission according to its necessity. It was generally agreed that simple psychomotor tests alone are of little consequence, but that discrimination tests are of greater value in determining aptitude for flying. Reaction time tests alone should not, however, constitute the basis for rejection, but they should constitute a part of the general examination of the candidate. (*b*) Indispensable tests at the present moment of our knowledge of the physiology of aviation. This and the following subject were discussed at length; the more important conclusions are presented later. (*c*) Limits of fitness and causes for exclusion. (*d*) The necessity for continuing in the proper institutes the studies and researches in physiology and hygiene of aviation. (*e*) The need of special training in psychologic institutes of medical officers attached to aviation. The last two subjects, *d* and *e*, were unanimously granted.

2. Duration of fitness: (*a*) Necessity of periodic examination of pilot. This was unanimously admitted. (*b*) Necessity of periods of rest. The necessity was admitted by all. It was deemed advisable to leave the question of time duration to the physician in charge of the fliers rather than make it a matter of routine as suggested by the Italians, who advocated one month's rest after each 100 hours of flying. (*c*) The special trouble of aviators.

3. Methods for the protection of the pilots: (*a*) Protection against cold and wind. Those with experience felt that

electrically heated clothing had proved a failure. Fur lined clothing has proved much more popular with the pilots themselves. Face greases were in general use in all the countries and were considered of unquestionable value, but further experimentation is necessary in regard to composition. Belts and padding for the cockpit were also discussed. (*b*) Means of controlling the effects of low barometric pressure. It was deemed essential to equip all machines with an oxygen apparatus preferably automatic in character. No decison was reached as to whether carbon dioxid is nesessary in addition. (*c*) General hygienic considerations.

4. Medical organization and medicolegal responsibility.
5. Representation to the governments concerned.

SPECIAL SESSION

A special session was held on the day following the official congress for consideration of some of the problems fundamentally important in aviation medicine, such as circulation, respiration, vision and equilibrium.

Circulation: In order to obtain comparable results in various countries, uniformity in blood pressure apparatus and in technic regarding posture and type of exercise was advocated in the study of the effects of posture and exercise on the pulse and blood pressure.

Respiration: Studies of vital capacity were considered by the British of definite value, especially in relation to fatigue. It was suggested that hereafter it be not considered alone but in relation to body surface. Colonel Dreyer asserted that vital capacity is a function of a body surface rather than that of body weight, and submitted a practical formula in this connection. Flack's test (a support of a 40 mm. column of mercury) was looked on as an excellent index of physical fitness and was considered of special value in revealing flying fatigue.

Vision: The desirability of perfect vision is unanimously admitted. America alone was in a position to demand perfect vision without correction by glasses. It was left to each country to set its limits as determined by its needs and the supply of men available. The importance of muscle balance and of color vision was emphasized. A general feeling existed that there was need of further study of standards in relation to night vision.

Equilibrium: While it was agreed that vestibular function has some bearing on aptitute for flying, it was felt that its importance had been overemphasized. It was the opinion of the congress that much further study was necessary before limits could be placed on the various Bárány chair tests.

RESOLUTIONS

Resolutions were passed that:

1. Special examinations are necessary for aviation. The basis of this should be a thorough general physical examination. Perfect somatic health is essential and in addition, if possible, perfect sensory functions.

2. Research institutions for medical, physiologic, psychologic and hygienic investigations are essential. Such institutions should be maintained in each country.

3. It is desirable that such institutes should be uniformly known as aviation medicophysiologic institutes.

4. Uniformity is desirable in relation to standards in medical, physiologic, psychologic and hygienic examinations as carried on in various countries.

5. Special training is necessary for medical officers designated for service in aviation, and provision for their training should be made in the aviation medicophysiologic institutes.

6. All aviation medical officers attached to field work should be required to fly as passengers, and it is desirable that medical officers engaged in research problems of aviation should also fly as passengers in order that they may better grasp the flier's point of view of the problems involved.

7. Special hospitals should be established or wards under proper control should be set aside for military fliers in existing hospitals, and such hospitals should be supplied with properly equipped laboratories for the studies in relation to aviation medicine.

8. It is essential to equip all machines with an apparatus, preferably automatic in character, for the administration of oxygen and carbon dioxid in order to overcome the effects of altitude.

9. A permanent organization should exist for the prosecution of work in relation to aviation medicine and for the interchange of ideas and information relating to it.

OFFICERS

A permanent organization was created and designated as the Société scientifique d'étude médicale aeronautique. The following officers were elected: president, Dr. Georges Guillain, Paris; secretary, Dr. Alberto Agazzotti, Modena, Italy; treasurer, M. Raymond Gaumont, Paris. Executive committee: Dr. Giuseppe Gradenigo for Italy; Dr. Henry Head for Great Britain; Dr. Thomas R. Boggs for the United States; Dr. Jules Voncken for Belgium. Rome was selected as the home of the society, and Oxford, England, for the next annual meeting in 1820.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C. captain; M. major; L. C., lieutenant-colonel; Col., colonel, and B. G., brigadier-general.

ALABAMA

Attalla—Stewart, G. E. (L.)
Bellamy—Hale, R. E. (C.)
Belleville—Skinner, P. B. (C.)
Birmingham—Bean, J. R. (L.)
Kelley, A. L. (L.)
Stiles, M. P. (L.)
Woods, L. C. (C.)
Brewton—Hagood, M. H. (M.)
Center—Sewell, W. A. (C.)
Demopolis—Savage, T. C. (L.)
Dozier—Taylor, T. W. (C.)
Evergreen—Cammack, K. R. (L.)
Gadsden—Bass, H. W. (C.)
Morgan, J. O. (L.)
Marion—Swann, E. (C.)
Mobile—Cole, H. P. (M.)
Reaves, J. U. (L.)
Wilson, J. M. (L.)
Sylacauga—Porch, R. D. (L.)
Tuscaloosa—Fitts, A. (C.)

ARIZONA

Fort Defiance—Monk, J. A. (L.)
Globe—Wales, J. L. (C.)
Holbrook—Bazell, J. W. (L.)
Phoenix—Hughes, C. I. (L.)
Winslow—Bazell, R. G. (C.)

ARKANSAS

Cotton Plant—Brown, E. B. (L.)
DeQueen—Hopkins, R. L. (L.)
Hot Springs—Tribble, A. H. (C.)
Wade, H. K. (L.)
Little Rock—Gann, D., Jr. (C.)
Wayne, J. R., Jr. (M.)
McCrory—Fraser, R. L. (L.)
Pine Bluff—Strauss, A. W. (L.)
Searcy—Harrison, A. G. (L.)

CALIFORNIA

Azuza—Hill, J. E. (C.)
Camptonville—Lord, F. K. (L.)
Chico—Enloe, N. T. (C.)
Ferndale—Hoskins, G. (L.)
Huntington Park—Turner, J. H. (C.)
Lankershim—Shirey, C. W. (L.)
Lincoln—Hyde, O. C. (L.)
McCullough, F. E. (C.)
Lindsay—Tourtillott, W. W. (L.)
Lodi—Gardner, J. M. (L.)
Long Beach—Buell, A. W. (L.)
Los Angeles—Ballard, C. (L.)
Bancroft, I. R. (C.)
Biggs, E. L. (C.)
Bonoff, K. M. (L.)
Bowman, W. B. (M.)
Campbell, M. N. (C.)
Clinton, E. M. (L.)
Collins, T. S. (C.)
Daniel, W. H. (L.)
Dieterle, K. L. (L.)
Frees, B. M. (L.)
Gage, C. E. (L.)
Hanford, F. W. (C.)
Hill, R. B. (L.)
Holleran, J. F. (L.)
Jeffs, M. D. W. (L.)
Mace, L. R. (L.)
Porter, G. S. (L.)
Rand, C. W., (L.)
Roth, L. J. (C.)
Swim, W. A. (L.)
Tebbetts, J. H. (L.)
Thornton, J. (L.)
Mill Valley—Beard, J. L. (L.)
Modesto—Bissell, N. C. (C.)
Oakland—Clark, E. M. (L.)
Shade, M. A. (L.)
Ocean Park—Sands, R. A. (L.)
Palo Alto—Silliman, J. C. (C.)
Pasadena—Fitch, S. J. (L.)
Luckie, J. B. (L.)
Mattison, E. G. (L.)
Petaluma—Peoples, S. Z. (L.)
Richmond—Caesar, W. J. (L.)
San Diego—Bobbitt, A. N. (C.)
San Francisco — Boge, H. G. C. (L.)
Burnham, M. P. (C.)
Carlton, A. C. (M.)
Edwards, S. R. (L.)
Guntz, A. V. (L.)
Hubbell, G. R. (M.)
Leaverton, C. C. (L.)
Long, M. H. (L.)
Mordoff, C. E. (M.)
Pratt, G. D. (L.)
Purcell, G. W. (L.)
Stone, E. E. (C.)
Sturr, R. P. (L.)
San Pedro—Moore, W. D. (L.)
Santa Ana—McAuley, J. (L.)
Santa Barbara — Sidebotham H. (M.)
Santa Monica — Berkley, H. K. (C.)
Santa Rosa—Shaw, J. H. (C.)
Sebastopol—Wilson, L. J. (C.)
Sherman—Perry, J. R. (L.)
Sonoma—Thomson, A. M. (L.)
South Pasadena — Browning, C. C. (L.)
Whittier—Smith, W. E. (C.)

COLORADO

Boulder—Swartz, F. G. (L.)
Colorado Springs—Allen, L. R. (C.)
Brown, J. H. (M.)
McKinnie, L. H. (M.)
Peters, A. H. (L.)
Denver—Chase, J. S., Jr. (L.)
Crosby, L. G. (C.)
Jayne, W. A. (L. C.)
Lewis, G. B. (L.)
Monaghan, D. G. (C.)
Pershing, C. L. (M.)
Wilcox, H. W. (C.)
Frederick—Leyda, P. L. (C.)
Pueblo—Wolf, J. G. (C.)

CONNECTICUT

Ansonia—MacNish, J. F. (L.)
Bridgeport—Smith, S. R. (L.)
Danbury—English, R. M. (M.)
Hampton—Marsh, A. D. (L.)
Hartford—Ashton, L. O. (L.)
Middletown—Nolan, D. A. (C.)
New Haven—Russo, J. D. (L.)
Slemons, J. M. (M.)
Weil, A. (C.)
Portland—Chedel, C. B. (C.)
South Norwalk — Perdue, R. E. (M.)
Stratford — Hennessey, E. H. J. (L.)
West Haven—Rogers, P. H. (L.)

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Kane, H. F. (C.)
Lee, E. H. (C.)
Lehr, L. C. (M.)
Roche, A. F. (L.)
Sullivan, R. Y. (M.)

FLORIDA

Chattahoochee—Smith, H. M. (L.)
Jacksonville—Croft, T. G. (L.)
Kennon, C. L. (L.)
Taylor, H. M. (C.)
Ocala—Ponder, J. M. (L.)
Pensacola—Bickeystaff, J. H. (L.)
Sarasota—Schultz, F. W. (L.)
Starke—Freeman, A. H. (C.)
Tallahassee—Johnston, J. K. (L.)
Kendrick, O. G. (L.)

GEORGIA

Atlanta—Kinard, J. O. (L.)
McAllister, J. A. (L.)
Nash, H. E. (L.)
Augusta—Gherken, H. S. (L.)
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Frolona—Manley, J. R. (L.)

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Savannah—Fuquay, G. L. (L.)
Kirkland, N. L. (L.)
Summit—Riner, C. R. (C.)
Waycross—Bradley, D. M. (L.)
Witmer, C. A. (L.)

IDAHO

Jerome—Piper, E. D. (L.)
Malad City—Kerns, J. M. (L.)
New Meadows—Whiteman, R. T. (L.)
Weiser—Conant, C. C. (M.)

ILLINOIS

Batchtown—Wood, H. (C.)
Belleville—Otrich, G. C. (C.)
Benton—Austin, E. (L.)
Blue Island—Finkel, M. (L.)
Castleton—Neill, C. W. (L.)
Chicago—Barrett, C. W. (M.)
Bernart, W. F. (C.)
Blatt, M. L. (M.)
Boot, G. W. (C.)
Capps, J. A. (L. C.)
Cary, E. (C.)
Chilcott, I. H. (L.)
Curtis, A. H. (C.)
Di Cosola, F. S. (L.)
Epstein, S. S. (L.)
Fillis, B. E. (L.)
Fisher, H. E. (C.)
Fleming, S. C. (L.)
Foley, T. P. (M.)
Grant, J. F. (L.)
Hanmore, F. C. (L.)
Harvey, B. C. H. (M.)
Holden, A. A. (L.)
Johannesson, C. J. (L.)
Lapin, C. P. (L.)
Lavin, J. M. (M.)
Levett, J. (L.)
Lewis, H. F. (M.)
Lyons, A. J. (M.)
Loyns, E. W. (L.)
McClellan, J. H. (M.)
Moe, C. C. (L.)
Moeller, F. W. (M.)
Piper, L. P. (L.)
Plummer, S. C. (M.)
Rennie, T. W. (L.)
Roberts, S. M. (L.)
Rochester, A. S. (L.)
Schott, O. J. (L.)
Stearns, R. W. (L.)
Strauss, J. F. (C.)
Sullivan, S. (L.)
Thompson, W. M. (M.)
Tint, L. J. (L.)
Walls, L. L. (L.)
Wernicke, H. O. (L.)
White, J. R. (M.)
Wiley, C. R. (L.)
Chicago Heights—Spencer R. V. (L.)
Cutler—Woofter, J. V. (L.)
Dawson—Mayes, E. G. (L.)
Easton—Tomlin, R. R. (L.)
East St. Louis—Foulon, I. L. (L.)
Effingham—Henry, S. F. (C.)
Elgin—Fell, E. W. (M.)
Schmidt, H. G. G. (C.)
West, H. H. (C.)
Farmersville—Hayes, K. L. (L.)
Findlay—Snapp, C. F. (L.)
Gillespie—Vogt, F. C. (C.)
Grant Park—Nielsen, C. H. (L.)
La Salle—Woods, R. H. (L.)
Le Roy—Haig, G. F. (L.)
Littleton—Littlefield, H. A. (L.)
Madison—Hamm, M. (L.)
Magnolia—Simmons, W. A. (L.)
Manteno—Phipps, O. A. (C.)
Melvin—Boshell, H. N. (C.)
Morris—Whitman, R. (L.)
Morrison—Pettitt, H. L. (L.)
Mound City—Whiteaker, H. (C.)
Nauvoo—Bortz, J. A. (C.)
Norris City—Wakeford, C. (C.)
Oak Park—Tope, J. W. (C.)
Peoria—Durkin, H. A. (L.)
Sprenger, A. (L.)
Quincy—Zimmerman, E. (L.)
Red Bud—Riess, J. T. (L.)
Rockford—Lundholm, J. S. (L.)
Serena—Mosher, B. D. (C.)
Shelbyville—Monroe, H. E. (C.)
Springfield—Morrison, H. T., Jr. (C.)
Strawn—Boies, H. M. (L.)
Williamsville—Haskell, C. D. (L.)
Wyoming—Henson, J. G. (L.)

INDIANA

Anderson—Gante, H. W. (L.)
Auburn—Geisinger, L. N. (L.)
Bicknell—Ashley, C. W. (C.)
Bloomington — Startzman, C. K. (C.)
Boonville—Robinson, W. P. (L.)
Columbus—Graham, P. C. (L.)
Crawfordsville—Sigmond, H. W. (C.)
Williams, G. T. (C.)
Evansville — Magenheimer, E. F. (L.)
Fort Wayne—Blosser, H. V. (L.)
Eberly, K. C. (C.)
Rice, W. B. (L.)
French Lick—Rogers, L. (C.)
Gary—King, E. P. (L.)
Greencastle—Ferguson, A. D. (C.)
Hartford City—Sellers, C. A. (L.)
Hillsboro—Bounell, E. G. (L.)
Indianapolis—Graham, A. B. (M.)
Humes, C. D. (M.)
Page, L. (M.)
Jeffersonville—Reeder, H. H. (C.)
Lafayette—Hannell, R. V. (L.)
Van Reed, E. (L.)
Lanesville—Teaford, B. J. (L.)
Ligonier—Hursey, V. G. (L.)
Milan—Whitlatch, I. A. (C.)
Mishawaka—Wyland, B. J. (L.)
New Augusta—Elfers, C. R. (L.)
Owensville—Gibson, J. P. (L.)
Peru—Lynch, O. R. (C.)
Princeton—Gudgel, H. B. (L.)
Salem—Huckelberry, I. E. (L.)
Seelyville — Carmichael, C. S. (L.)
St. Bernice—Green, S. I. (L.)
Tell City—James, N. A. (L.)
Terre Haute—Miller, D. T. (L.)
West Baden—Boyd, C. E. (L.)
Winamac—Collins, L. P. (L.)

IOWA

Belmond—Steele, G. H. (C.)
Brighton—McGuire, R. A. (C.)
Burlington—Woodbury, E. I. (C.)
Clearfield—McCall, H. E. (C.)
Clinton—Reynolds, H. B. (L. C.)
Weih, E. P. (L.)
Des Moines—Meredith, L. K. (L.)
Tyrrell, J. W. (L.)
Farmington—Coffin, L. A. (L.)
Gilmore City—Herrick, R. C. (L.)
Hornick—Rentz, C. B. (L.)
Lake Mills—Kaasa, L. J. (L.)
Manson—Mullarky, H. (C.)
Ottumwa—Mills, F. W. (L.)
Sioux City—Cheney, L. D. (L.)
Sawyer, P. E. (M.)
Swan—Hooper, L. E. (L.)
Webster City—Drake, F. J. (L.)
Westside—Patterson, C. L. (C.)

KANSAS

Americus—Edmiston, R. H. (L.)
Benton—Lightner, O. N. (L.)
Buckley—Scott, A. B. (L.)
Ellsworth—Hoffman, R. L. (C.)
Emporia—Corbett, O. J. (C.)
Williams, J. O. (L.)
Girard—Smith, D. C. (L.)
Independence—Alford, J. S. (C.)
Kansas City—Bantleon, V. H. (C.)
Lind, A. J. (C.)
Rhodes, W. L. (L.)
Leavenworth—Langworthy, J. H. (M.)
Mound City—Dingus, J. O. (L.)
Newton—Scott, J. R. (M.)
Wichita — Higginbotham, G. W. (L.)
Maggard, D. I. (C.)
Phares, W. A. (M.)
Ross, C. E. (C.)

KENTUCKY

Bowling Green—Stone, E. W. (L.)
Buechel—Dyer, G. L. (L.)
Cecilia—Nusz, H. R. (C.)
Covington—Ryan, J. A. (C.)
Dry Fork—Young, J. S. (L.)
Lexington—Bullock, W. O. (M.)
Vallandingham, J. L. (L.)
Louisville—Jefferson, C. W. (L.)
Richardson, J. B. (C.)
Mayfield—Pryor, J. R. (L.)
Puryear, J. G. (L.)
Owensboro—Oldham, S. P. (C.)
Salt Lick—Nickell, H. L. (L.)
Somerset—Jasper, R. F. (L.)
Valley View—Dawson, J. L. (L.)

LOUISIANA

Alexandria—Cappel, M. (M.)
Blackburn—Palmer, F. (L.)
Lake Charles — Kushner, L. Z. (C.)
Leesville—Palmer, N. M. (L.)
Minden—Norman, B. A. (L.)
New Orleans—Guthrie, J. B. (M.)
Querens, P. L. (L.)
Voss, R. C. (L.)
Reids—Lane, L. T. (L.)
Ruston—Calhoun, D. S. (M.)
Springfield—Ehlert, J. M. (L.)

MAINE

Augusta—Hambleton, M. P. (L.)
Bridgton—Lombard, H. L. (L.)
Hebron—Marshall, L. B. (L.)
Limestone—Damon, A. H. (C.)
Portland—Fisher, S. E. (C.)
West Paris—Wheeler, F. E. (L.)

MARYLAND

Baltimore—Chatard, J. A. (M.)
Cohen, L. (C.)
Daves, J. T. (L.)
Hanna, M. J. (C.)
Knapp, H. C. (C.)
Mason, V. R. (C.)
Moss, W. L. (L. C.)
Neill, W., Jr. (L.)
Sydenstricker, V. P. (C.)
Wharton, L. R. (C.)
Whitham, L. B. (C.)
Biddeford—Hill, P. S. (C.)
Cambridge—Smith, M. D. (L.)
Elkton—Cawley, W. D. (C.)
North East—Priest, W. M. (L.)
Port Deposit — Richards, G. H. (C.)

MASSACHUSETTS

Boston—Cohen, S. A. (L.)
Denny, G. P. (C.)
Di Mento, V. J. (L.)
Emerson, P. W. (L.)
Goodall, H. W. (L. C.)
Hammond, W. J. (C.)
Hodgkins, E. M. (L.)
Irving, F. C. (C.)
King, E. (L.)
Kissock, R. J. (C.)
Knowles, W. F. (M.)
Levins, N. N. (L.)
Merrill, A. S. (M.)
Mixter, C. G. (M.)
Mixter, W. J. (M.)
O'Neil, R. F. (M.)
Paul, B. D. (L.)
Phaneuf, L. E. (L.)
Shapleigh, H. L. (L.)
Tobey, H. G. (C.)
Tooker, H. C. (L.)
Torbet, I. R. (C.)
Verhoeff, F. H. (M.)
Vincent, B. (M.)
Charleston—Stacey, W. D. (L.)
Easthampton — Winslow, E. S. (C.)
Fall River—Fennelly, D. J. (C.)
Miot, J. D. (L.)
Watt, C. H. (C.)
Haverhill—Connor, G. J. (L.)
Holyoke—Gibson, F. L. (L.)
Longmeadow—Dexter, F. F. (L.)
Lowell—Ellison, D. J. (L.)
Millbury—Hurd, A. G. (C.)
Montague—Cooke, G. A. (C.)
Revere—Sandler, F. F. (L.)
Salem—Trueman, N. G. (C.)
Springfield—Byrnes, H. F. (C.)
Connery, W. L. (L.)
Eastman, A. C. (C.)
Jones, F. D. (L.)
Judd, E. H. (L.)
Worcester—Cahill, J. W. (C.)
Gage, H. (M.)
Kinnicutt, R. (M.)
Paglia, J. J. (L.)

MICHIGAN

Ann Arbor—DePree, P. J. (C.)
Kraft, R. W. (C.)
Battle Creek—Gage, J. G. (L.)
Sleight, R. D. (C.)
Bay City—Huckins, E. S. (L.)
Clare—Mussell, A. R. (L.)
Decker—Woodhull, C. G. (C.)
Detroit—Bennett, Z. B. (L.)
Bryant, A. E. (L.)
Dretzka, L. J. (L.)
Duyer, F. (L.)
Ford, W. D. (M.)
McLean, A. (Col.)
Simpson, C. E. (C.)
Vaughan, J. W. (L. C.)
Walker, F. B. (M.)
Elk Rapids—Yerkes, L. N. (C.)
Eloise—Chance, J. H. (L.)
Jackson—Munro, C. D. (C.)
Lake Odessa — McLaughlin, N. (L.)
Northville—Henry, T. B. (M.)
Redford—Tupper, R. D. (L.)
Saginaw—Bruce, J. D. (M.)
Stanton—Danforth, M. E. (L.)
Union City—Bien, W. J. (L.)
Wyandotte—Knapp, J. G. (L.)

MINNESOTA

Austin—Allen, C. C. (C.)
Canby—Homlberg, L. J. (L.)
Duluth—Walkowiak, S. A. (L.)
International Falls—Withrow, M. E. (C.)
Madison—Lee, W. N. (L.)
Minneapolis — Gallagher, B. J. (L.)
Gillis, F. L. (L.)
Morrison, A. W. (C.)
Redwood Falls — McPheeters, H. O. (L.)
Rochester — Eusterman, G. B. (C.)
Lillie, W. I. (L.)
Pollock, L. W. (L.)
St. Paul—Dennis, W. A. (L. C.)
Stewart—Kohler, F. G. (L.)

MISSISSIPPI

Boyle—Merritt, W. M. (L.)
Clarksdale—Carr, I. P. (L.)
Cleveland—Turner, F. P. (L.)
Cruger—Strahan, W. H. (C.)
Erwin—Scott, W. W. (L.)
Friars Point—Slack, J. A. (C.)
Greenwood—Barrier, L. F. (C.)
Hardy Station—Coats, F. B. (C.)
Meehan Junction—Bounds, G. W. (L.)
Ripley—Barbee, J. T. (M.)
Rosedale—Nobles, E. R. (L.)
Tunica—Alexander, M. J. (L.)
Williams, W. H. (L.)
Union—Hagan, Z. C. (C.)

MISSOURI

Canton—Crank, A. C. (C.)
Cardwell—Scott, A. G. (L.)
Creighton—Griffith, E. M. (C.)
Dixon—Rolens, L. E. (L.)
Fredericktown—DeHoney, F. R. (L.)
Hannibal—Spencer, F. B. (C.)
Kansas City—Dargatz, F. E. (L.)
Hurwitt, F. (C.)
McCarty, V. W. (L.)
Owens, J. L. (L.)
Postlethwaite, F. M. (L.)
Rogers, F. B. (C.)
Koller—Eudy, W. T. (L.)
Lee's Summit—Farmer, L. R. (L.)
Lockwood—Hoel, W. M. (L.)
Old Monroe—Neunlist, P. C. (L.)
Owensville—Mills, J. W. (L.)
Pleasant Hill—Conrad, C. L. (L.)
Sedalia—Clabaugh, O. W. (C.)
Sikeston—Wiley, R. E. (L.)
Skidmore—Pierpont, J. E. (L.)
St. Louis—Boyne, W. W. (C.)
Clausen, S. W. (L.)
Dean, W. T. (L.)
Draney, T. L. (L.)
Gettys, S. L. (C.)
Goldstein, M. A. (M.)
Griot, A. J. (L.)
Harnagel, F. H. (L.)
Herchenroeder, L. C. (C.)
Heuer, S. (C.)
Homan, J. S. (L.)
Kelly, C. A. (L.)
Kowalsky, E. I. (L.)
Lonsway, M. J. (L.)
McClure, T. C. (L.)
Shreffler, A. R. (L.)
Slaughter, F. M. (L.)
Spivy, R. M. (C.)
Steinle, G. H. (L.)
Wainright, A. G. (C.)
Sweet Springs—Parsons, C. W. (L.)
Utica—Carpenter, G. W. (L.)
Vancleve—Nieweg, G. A. (L.)
Webster Groves—Goodrich, H. A. (L.)

MONTANA

Billings—Arnold, F. L. (L.)
Morrison, W. R. (C.)
Cascade—Vanatta, F. C. (C.)
Judith Gap—Gans, E. M. (C.)
Kalispell—O'Neill, E. D. (C.)
Medicine Lake — Storkan, J. C. (L.)
Missoula—Shea, W. E. (M.)
Roundup—Welsh, T. W. (C.)
Scobey—Needles, A. S. (L.)
Sheridan—Sutherland, E. L. (C.)

NEBRASKA

Albion—McRae, F. J. (C.)
Harrison—Barns, F. M. (M.)
Hastings—McPherson, J. B. (C.)
Lincoln—Wilmeth, H. D. (L.)
Zemer, S. G. (L.)
Madison—Wilson, E. O. (L.)
Millard—Fossler, J. J. (L.)
Norfolk—Barry, A. C. (L.)
Carson, H. R. (C.)
Oakland—Swenson, S. A. (C.)
Omaha—Brown, A. J. (M.)
Henske, J. A. (C.)
Kleyla, J. R. (L.)

Omaha—Patton, J. M. (M.)
Potts, J. B. (C.)
North Platte—Kerr, T. J. (C.)
Winnetoon—Crook, R. (C.)

NEVADA

Reno—Abbott, H. A. (L.)

NEW HAMPSHIRE

Nashua—Rowe, F. E. (L.)

NEW JERSEY

Allentown—Anderson, H. M. (C.)
Avon-by-the-Sea — Angeny, F. G. (M.)
Belleville—Whitney, L. D. (L.)
Burlington—Conroy, J. S. (L.)
Elizabeth—Gerendasy, J. (L.)
Englewood—McKinlay, C. M. (L.)
Sullivan, M. J. (C.)
Hamburg—Coleman, J. G. (L.)
Jersey City—Jones, J. M. (C.)
Miner, D. (M.)
Wilson, J. L. (L.)
Kearney—Goldstein, W. H. (L.)
Newark—Disbrow, G. W. (L.)
Fewsmith, J. L. (C.)
Gale, G. B. (M.)
Hurff, J. W. (L.)
Rich, H. H. (L.)
Newton—Morrison, F. H. (L.)
Orange—Matthews, H. E. (C.)
Paterson—McBride, A. F. (M.)
Neer, F. Y. (M.)
Russell, C. B. (L.)
Tood, F. H. (C.)
Perth Amboy — McCormick, W. H., Jr. (L.)
Pitman—Lummis, M. F. (C.)
Plainfield—Childers, R. J. (C.)
Krans, E. S. (C.)
Somerville—Ely, L. (M.)
Summit—Lawrence, W. H., Jr. (M.)
Trenton—Adams, C. F. (M.)

NEW MEXICO

Clayton—Daniel, D. C. (L.)
Muir, J. W. (L.)
Lovington—Gallatin, H. H. (L.)

NEW YORK

Albany—Doescher, T. F. (C.)
Lipes, H. J. (M.)
Randall, G. B. (L.)
Auburn—Willoughby, M. K. (C.)
Batavia—Manchester, W. B. (L.)
Binghamton—Bowen, J. D. (L.)
Brooklyn—Agris, H. (L.)
Baldwin, J. S. (C.)
Best, W. H. (M.)
Blackmar, B. G. (C.)
Commiskey, L. J. J. (M.)
Davison, W. C. (L.)
Feinblatt, H. M. (L.)
Feinier, L. G. (L.)
Fiske, E. H. (L. C.)
Haft, H. H. (L.)
Houghton, P. F. (L.)
Kelly, J. D. (C.)
Lavine, M. R. (L.)
Moses, H. M. (M.)
Nemser, A. (L.)
Quinn, J. R. (L.)
Saniter, E. H. (L.)
Sharp, J. C. (C.)
Tirman, S. (L.)
Buffalo—Chadwick, J. G. (C.)
Culbertson, H. W. (L.)
Haley, F. J. (L.)
Kurek, L. S. (C.)
Lohnes, H. R. (C.)
Long, F. H. (L.)
Machemer, W. L. (L.)
McDowell, H. C. (L.)
Oppermann, G. M. (L.)
Smith, H. A. (C.)
Burke—Finney, F. F. (C.)
Canandaigua—Burgess, H. C. (L.)
Canisteo—Mitchell, H. H. (L.)
East Aurora—Klein, J. J. (C.)
Eastport—Hoole, L. P. (L.)
Elmira—Loop, R. G. (C.)
Pugh, D. E. (C.)
Far Rockaway—Tepper, A. S. (L.)
Florida—Many, C. W. (C.)
Forest Hills—MacNeal, W. J. (M.)
Franklin—Warren, L. C. (L.)
Geneseo—Senke, H. C. (L.)
Ithaca—Vose, R. M. (M.)
Kingston—Barnum, F. L. (L.)
Lancaster—Mackey, C. H. (C.)
Mechanicsville — Crissey, G. W. (C.)
Middletown—Schultz, E. M. (L.)
New York—Abbott, T. J. (M.)
Allison, R. G. (L.)
Bancroft, F. W. (M.)
Beck, B. J. (C.)
Bleier, E. (C.)
New York—Boviard, D. (L. C.)
Boyd, C. S. (L.)
Branner, M. (C.)
Clark, J. B. (M.)
Cohn, M. (L.)
Cohn, S. (M.)
Connery, J. E. (L.)
Connors, J. F. (M.)
Cronk, H. T. (L.)
Denzer, B. S. (C.)
di Palma, S. (C.)
Emsheimer, H. W. (C.)
Ettelson, J. (C.)
Floyd, R. (L. C.)
Ford, W. M. (M.)
Frank, R. T. (M.)
Geist, S. H. (C.)
Gracey, G. F. (M.)
Graham, J. R. (C.)
Greenwald, M. (L.)
Halsey, R. H. (L. C.)
Held, R. J. (M.)
Helmuth, W. T. (M.)
Huddleson, J. H., Jr. (L.)
Johnson, H. F. (L.)
Johnston, H. C. (L.)
Keating, J. J. H. (L.)
Kent, J. M. (M.)
Kilbane, E. F. (M.)
Levy, E. (L.)
Levy, M. A. (C.)
MacGuire, C. J., Jr. (C.)
Martin, T. A. (M.)
McLean, F. (M.)
Mecca, G. J. (L.)
Morrow, A. S. (L. C.)
Osnato, M. (C.)
Peightal, T. C. (L.)
Ramsey, G. H. (L.)
Roof, S. W. (C.)
Rosewater, C. A. (C.)
Schwartz, H. J. (L.)
Selinger, J. (L.)
Siegelstein, M. J. (L.)
Siglar, H. B. (C.)
Silberman, M. K. (L.)
Sloan, H. L. (L.)
Sneed, W. L. (L.)
Steele, K. B. (L.)
Steiner, J. M. (M.)
Sternberger, E. (M.)
Stillman, E. (C.)
Strauss, S. (M.)
Sullivan, J. F. (L.)
Thomson, E. S. (M.)
Tilton, B. T. (M.)
Trimble, J. F. (L.)
Van Beuren, F. T. (M.)
Wagner, J. (C.)
Wallace, G. B. (M.)
Walsh, R. E. (M.)
Williamson, A. H. (L.)
Wilson, R. M. (L.)
Yankauer, S. (M.)
Yocum, J. G. (M.)
Niagara Falls—Barry, R. S. (C.)
Jerauld, F. N. C. (M.)
North Rose—Roney—F. F. (L.)
North Tonawanda—Maldiner, H. O. (L.)
Norwich—Gibson, E. F. (C.)
Olean—Johnson, J. A., Jr. (L.)
Oriskany Falls—Wilson, R. B. (L.)
Rochester—Burnes, E. H. (L.)
Chapman, M. (C.)
Hennington, C. W. (M.)
Round Lake—Paul, G. P. (C.)
Schenectady—Ham, S. S. (C.)
Woodell, C. W. (C.)
Seneca Falls—Brandt, G. M. (L.)
Stanley—Selover, C. W. (M.)
Staten Island—Callahan, F. F. (L.)
Patton, J. R. (L.)
Syracuse—Britten, G. S. (M.)
Doust, H. B. (M.)
Lawless, A. T. (L.)
MacGruer, H. A. (M.)
Silverman, A. C. (L.)
Tonawanda—Fairbanks, H. C. (L.)
Troy—Hambrook, A. J. (C.)
Stalter, G. R. (L.)
Trotter, W. (L.)
Yonkers—Getty, S. E. (M.)
Kennedy, V. (L.)

NORTH CAROLINA

Albemarle—Dunlap, L. V. (L.)
Asheville—Fletcher, M. H. (M.)
Aurora—Bynum, C. M. (L.)
Bakersville—Gouge, A. E. (L.)
Charlotte—Allan, W. (C.)
Brenizer, A. G. (L. C.)
Greensboro—Long, J. W. (L. C.)
Lumberton—Beam, R. S. (L.)
Moyock—Bagley, R. A. (L.)
North Charlotte—Blalock, B. K. (L.)
Raleigh—Campbell, A. C. (C.)
McKee, J. S. (C.)
Turner, H. G. (C.)
Rockwell—Earnhardt, J. M. (L.)
Wadesboro—Allen, C. I. (L.)
Davis, J. M. (L.)
Waynesville—Way, J. H. (M.)

NORTH DAKOTA

Jamestown—Swanson, C. A. (L.)
Mayville—Martin, T. P. (C.)
Montpelier—Plant, J. H. (L.)
Westhope—Greene, E. E. (L.)

OHIO

Akron—Logan, G. M. (C.)
McKay, R. H. (L.)
Riley, F. W. (L.)
Springer, J. E. (L.)
Andover—Osborne, N. B. (L.)
Canton—Calhoun, A. H. (L.)
Folk, E. S. (L.)
Cincinnati—Aub, J. C. (L.)
Cragg, H. C. (C.)
Fogel, E. I. (L.)
Gath, P. (M.)
Hall, J. A. (L. C.)
King, C. (M.)
Oxley, F. M. (L.)
Palmer, D. W. (C.)
Taylor, N. E. (L.)
Topmoeller, G. B. (L.)
Williams, J. F. (L.)
Cleveland—Crawford, M. L. (L.)
Hill, W. C. (M.)
Lytle, J. A. (C.)
Wychgel, J. N. (C.)
Colton—Garwood, G. E. (C.)
Columbus—Clouse, K. A. (L.)
Goodman, S. J. (M.)
Hindman, S. (C.)
Johnson, R. A. (L.)
McGavran, C. W. (C.)
Rice, R. A. (C.)
Shaffer, E. R. (L.)
Steinfeld, A. M. (C.)
Dayton—Carley, A. W. (L.)
Gregg, W. D. (L.)
Roehm, W. (L.)
Sullivan, C. (C.)
Fremont—Kuntz, C. I. (L.)
Hamilton—Skinner, D. M. (L.)
Huntsburg—Williams, A. D. (L.)
Ironton—Henninger, O. H. (L.)
Jeffersonville—French, J. H. (L.)
Kalida—Siddall, J. D. (L.)
Kenton—Schuette, R. G. (L.)
Lima—Curtiss, E. J. (L.)
Poling, J. B. (L.)
Linden Heights—Valentine, C. M. (L.)
Lisbon—Bennett, H. W. (C.)
Lorain—Thomas, D. (L.)
Lore City—Johnston, A. R. (L.)
Marietta—Penrose, J. B. (C.)
North Baltimore—Cavett, C. S. (L.)
Powell, E. A. (L.)
Norwalk—Battles, M. L. (L.)
Orrville—Blankenhorn, M. A. (C.)
Painesville—Jones, E. S. (L.)
Salem—Derfus, L. F. (L.)
Shandon—Clark, B. (L.)
Solon—Thompson, R. B. (C.)
Springfield—Andre, R. M. (L.)
St. Marys—Noble, N. V. (L.)
Tiffin—Chamberlain, R. C. (C.)
Toledo—Ballmer, Z. H. (L.)
Brim, B. B. (L.)
Miller, L. D. (L.)
Williamstown—Tombaugh, A. A. (L.)
Wyoming—Paul, C. M. (M.)
Youngstown—Smyth, A. P. (L.)

OKLAHOMA

Ardmore—Early, R. O. (C.)
Clinton—McBurney, C. H. (L.)
Edmond—Holcombe, G. M. (L.)
Haskell—Shackelford, T. T. (L.)
Helena—Reichley, E. J. (L.)
Oklahoma City—Bailey, F. M. (C.)
Stout, M. E. (L.)
Webb, R. A. (C.)
West, W. K. (L.)
Ryan—Wade, L. L. (L.)
Sand Spring—Campbell, G. C. (L.)
Shattuck—Rollo, J. W. (L.)
Tonkawa—Stricklen, H. M. (C.)
Webbers Falls—Campbell, E. A. (C.)

OREGON

Ashland—Boslough, A. W. (L.)
Crane—Denman, H. (L.)
Falls City—Prime, G. E. (L.)
Hood River—Sifton, J. W. (C.)
Independence—Hewett, F. G. (L.)
Jefferson—Van Winkle, J. O. (L.)
La Grande—Ralston, F. L. (L.)
Madras—Haile, H. B. (L.)
Milwaukie—Taylor, W. R. (C.)
Portland—Breckenridge, M. M. (M.)
Portland—Morse, E. W. (C.)
Petheram, C. C. (L.)
Salem—Bates, C. E. (L.)
Silverton—Steelhammer, H. W. (L.)
Springfield—Pollard, W. H. (L.)

PENNSYLVANIA

Adrian—Quigley, J. E. (L.)
Albion—Peters, C. O. (L.)
Alicia—Lang, G. W. (L.)
Altoona—Hogue, J. D. (L.)
Hoover, E. J. (L.)
Ardmore—Stein, W. J. (L.)
Bridgeville — Winkelman, N. W. (L.)
Chambersburg—Wright, F. G. (L.)
Chester Springs — Wells, F. H. (L.)
Clarion—Hetzel, W. B. (L.)
Claysville—Johnson, E. J. (C.)
Cresson—Lynch, J. A. (C.)
Douglassville—Sener, W. J. (C.)
Duquesne—Szabo, D. E. (L.)
Erie—Gleeten, S. D. (C.)
Fountain Springs—Wyatt, J. H. (L.)
Foxburg—Camp, J. N. (L.)
Greensburg—Singer, J. J. (C.)
Hannastown—Kepple, A. S. (L.)
Homestead—Kallaway, S. (L.)
Industry—Holland, S. H. (L.)
Jeanette—Goble, C. A. (L.)
Latrobe—Nealen, S. W. (L.)
Lewisburg—Gundy, C. A. (L.)
McKeesport—Hunter, A. (C.)
McKees Rocks—Piper, C. L. (L.)
Mount Oliver—Truter, C. W. (C.)
New Bethlehem—Dougherty, W. O. (L.)
Oil City—Kofford, B. S. (L.)
Philadelphia — Baer, B. F., Jr. (M.)
Beardsley, E. J. G. (L. C.)
Bernard, M. B. (L.)
Blasser, J. A. (L.)
Bogart, A. E. (M.)
Chartock, S. (L.)
Fetetrolf, G. (M.)
Francine, A. P. (M.)
Harrison, W. J. (M.)
Henry, J. N. (M.)
Kelly, F. J. (M.)
Klauder, J. V. (M.)
Laplace, E. (M.)
Laws, G. M. (C.)
Lull, C. B. (L.)
Mackel, C. F. (L.)
McCarthy, D. J. (L.)
McDowell, J. E. (L.)
McGivern, C. S. (L.)
McKnight, H. A. (C.)
Nassau, C. F. (M.)
O'Drain, T. I. (C.)
O'Neill, J. F. (L.)
Pfeiffer, D. B. (L. C.)
Piersol, G. M. (L. C.)
Price, C. E. (C.)
Prince, L. H. (M.)
Repplier, S. J. (C.)
Sailer, J. (L. C.)
Silverman, G. J. (L.)
Smoczynski, M. E. (L.)
Tweddel, G. K. (L.)
Wang, C. W. (L.)
Watt, C. C., Jr. (C.)
Pittsburgh—Cameron, D. W. (C.)
Carmalt, H. G. (L.)
Gaggin, V. S. (C.)
MacLachlan, A. A. (L. C.)
Marshall, W. (C.)
McMaster, G. C. (C.)
Munster, J. A. (L.)
Rapport, D. L. (L.)
Ray, W. B. G. (M.)
Robinson, J. W. (C.)
Thigpen, F. L. (L.)
Plumville—Smith, C. M. (C.)
Port Allegany—McGranor, W. J. (L.)
Reading—Gable, F. J. (L.)
Krick, G. W., Jr. (L.)
Royersford—Buckwalter, J. A. (L.)
Sayre—Higgins, J. M. (L.)
Sharpsburg—Stanton, C. C. (C.)
Smithfield—Guiher, H. B. (C.)
South Bethlehem—McAvoy, J. B. (L.)
Tullytown—Klenk, J. M. (L.)
Uniontown—Doran, B. P. (L.)
Wesleyville—Thompson, R. W. (L.)
Widnoon—Hillard, T. R. (C.)
Womelsdorf—Livingood, J. E. (L.)

RHODE ISLAND

Providence—Brown, H. H., Jr. (L.)
Persky, M. A. (L.)

SOUTH CAROLINA

Belton—Haynie, W. R. (L.)
Chester—McFadden, R. H. (L.)
Clarks Hill—Sharpton, B. T. (L.)
Columbia—Adams, E. C. L. (C.)
Wheeler, S. E. (L.)
Estill—Johnston, P. J. (L.)
Eutawville—Coney, R. J. (L.)
Mullins—Martin, F. L. (L.)
Orangeburg—Shecut, L. C. (C.)
Rock Hill—Blackmon, W. R. (L.)
Sumter—Nash, J. F. (L.)
Westminster—Simpson, F. T. (L.)

SOUTH DAKOTA

Aberdeen—Murdy, R. B. C. (L.)
Bryant—Schwendener, J. E. (C.)
Flandreau—Spafford, F. A. (C.)
Highmore—Sigler, G. V. (C.)
Jefferson—Moodie, W. C. (L.)

TENNESSEE

Baileytown—Bailey, C. Y. (L.)
Bogota—Austin, D. T. (L.)
Bon Air—Mason, E. C. (L.)
Chattanooga—Shumacker, L. (M.)
Clifton—Culp, E. M. (L.)
Covington—Lindsey, L. J. (L.)
Dyer—Jackson, J. (L.)
Erwin—Stack, R. E. (L.)
Fayetteville—Goodrich, C. L. (C.)
Hampshire—Jones, J. H. (L.)
Harms—Sumners, W. P. (L.)
Iron City—Hardison, C. C. (C.)
Johnson City—Went, E. T. (C.)
Knoxville—Young, R. M. (L.)
Memphis—Alford, W. G. (L.)
Edwards, S. L. (C.)
Fleming, J. S. (L.)
Graham, F. (C.)
Henning, D. M. (M.)
Hobson, J. J. (C.)
Mason, R. F. (C.)
Nashville—Bacote, R. H. (L.)
Goldberg, N. H. (L.)
Mitchell, L. A. (L.)
Sullivan, R. E. (L.)
Witt, W. H. (M.)
Rockwood—Nelson, J. E. (C.)

TEXAS

Amarillo—Caldwell, A. J. (C.)
Belmont—Brown, W. D. (L.)
Clarksville—Dinwiddie, R. A. (L.)
Dallas—Boyce, W. A. (L.)
Brewer, T. C. (L.)
Levy, H. R. (L.)
Milliken, S. R. (C.)
Trumbull, R. A. (C.)
Usry, R. S. (C.)
Williams, T. S. (L.)
Del Rio—Boren, S. L. (C.)
Edna—Hogg, G. (L.)
El Paso—Stevens, B. F. (C.)
Fort Worth — Kingsbury, H. B. (C.)
Galveston—Hendry, C. H. (L.)
Houston—Greer, A. E. (L.)
Howard, A. P. (C.)
Ramsay, W. E. (L.)
Jonesboro—Moore, W. M. (L.)
Liberty Hill—Nowlin, A. (L.)
Loraine—Stevenson, C. W. (L.)
Plainview—Nichols, F. O. (L.)
Polytechnic—Huffman, A. M. (L.)
Quanah—McDaniel, R. R. (L.)
Quinlan—Goode, E. P. (L.)
Rosebud—Phillips, J. H. (L.)
San Antonio — Bassett, W. M. (M.)
Mitchell, J. L. (L.)
Paschal, F. L. (C.)
Rogers, L. M. (L.)
Ross, R. R. (L.)
San Marcos — DeSteigner, J. R. (L.)
Sweetwater—Fortner, A. H. (L.)
Tahoka—Turrentine, L. E. (L.)
Temple—Scott, K. J. (L.)
Terrell—Castner, C. W. (L.)
Texarkana—Read, W. K. (M.)
Three Rivers—Davis, R. R. (L.)
Throckmorton—King, J. E. (L.)
Uvalde—Myrick, C. R. (L.)
Waco—Croshthwait, W. L. (C.)
Dudgeon, H. R. (M.)
Quay, J. E. (L.)
West Point—Turner, W. F. (L.)
Wichita Falls—Miller, E. T. (L.)
Winters—Jennings, T. V. (L.)

UTAH

Delta—Broaddus, C. A. (L.)
Ephraim—Beal, D O. (L.)
Logan—Budge, E. S. (C.)
Salt Lake City — Flood, T. A. (M.)
Springville—Clarke, G. W. (C.)
Vernal—Green, G. W. (L.)

VERMONT

Arlington—Russell, G. A. (C.)
Newport—Genge, V. P. (L.)

VIRGINIA

Amelia—Putney, W. R. (L.)
Burgess Store—Selby, R. W. (L.)
Charlottesville — Nelson, H. T. (M.)
Elkton—Miller, E. B. (L.)
Hopewell—Levinson, F. (C.)
Lynchburg—Carroll, J. W. (M.)
Marion—Blankinship, R. C. (L.)
McKenney—Young, E. W. (C.)
Norfolk—Kennon, B. R. (M.)
Pocahontas—Haller, D. A. (M.)
Richmond—Boyle, M. L. (L.)
Brinkley, A. S. (L.)
Eckles, B. F. (L.)
McGuire, S. (L. C.)
Peple, W. L. (M.)
Preston, R. S. (L.)
Smith, J. H. (C.)
Timberlake, R. E. (L.)
Weitzel, J. S. (L.)
Wilkinson, R. J. (L.)
Wright, R. H. (C.)
Roanoke—Farmer, F. A. (L.)
Schuyler—Sizer, A. A. (L.)
Staunton—Bell, R. P. (M.)

WASHINGTON

Almira—Holgate, F. C. (L.)
Arlington—Harris, J. E. (L.)
Auburn—Brandt, W. H. (C.)
Dayton—Day, W. W. (L.)
Lyman, J. C. (C.)
Everett—Findley, H. P. (C.)
Stewart, J. K. (L.)
Richland—Hopper, C. D. (C.)
Seattle—Eagleson, J. B. (M.)
Groenlund, W. A. (L.)
Jordan, A. (C.)
Kintner, W. C. (L.)
Lazelle, H. G. (C.)
Mitchell, J. W. (L.)
Spokane—Ahlquist, R. E. (L.)
Butts, C. E. (M.)
St. John—McIntyre, D. (C.)
Tacoma—Blair, H. C. (L.)
Judd, H. S. (C.)
Keller, W. N. (M.)
Nace, A. G. (C.)
Penney, W. B. (C.)
Rhea, E. B. (C.)
Wheeler, E. C. (M.)
Vancouver—Wilcox, C. C. (L.)
Yakima—Cornett, G. W. (L.)

WEST VIRGINIA

Ashland—Scott, D. P. (L.)
Copeton—Lanich, L. J. (L.)
Fairmont—Yost, H. R. (L.)
Hansford—Ford, C. P. S. (L.)
Huntington—Vinson, L. T. (C.)
Ivaton—Farley, R. F. (L.)
Marting—Broschart, F. J. (M.)
Martinsburg—Williams, D. T. (L.)
Matewan—Triplett, W. H. (L.)
Morgantown—McBee, T. J. (L.)
South Charleston—Lambert, A. C. (L.)
Weirton—Talbott, H. H. (L.)
Wheeling—Megrail, E. (C.)
Wingerter, C. A. (C.)
Williamson—Whittico, J. M. (L.)

WISCONSIN

Brillion—Meyer, K. T. (L.)
Chilton—Hugo, D. G. (L.)
Eastman—Myrick, A. L. (L.)
Gilman—Neis, F. P. (L.)
Green Bay—Cowles, R. L. (L.)
Crikelair, F. L. (L.)
Greenwood—Kennedy, F. H. (C.)
Janesville—Waufle, G. C. (L.)
La Crosse—Rosholt, J. (L.)
Townsend, E. H., Jr. (L.)
Madison—Middleton, W. S. (C.)
Milwaukee—Burback, T. H. (L.)
Corcoran, C. J. (L.)
Foerster, O. H. (C.)
Lillie, O. R. (L.)
Merten, P. J. (L.)
Mitchell, S. R. (L.)
Schlaikowski, J. P. (L.)
Sykes, L. G. (C.)
Montford—Ketterer, E. A. (C.)
Oshkosh—Conley, J. M. (C.)
Rice Lake—Droock, V. (L.)
Richland Center—McCarthy, H. C. (C.)
Superior—Lohmiller, R. K. (L.)
Rollefson, C. J. (C.)
Union Grove—Parker, T. G. (L.)
Walworth—Curless, G. W. (L.)
Wausaw—Flemming, E. E. (L.)
Thielke, G. A. (L.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

ALABAMA

Montgomery—Boswell, F. P.

CALIFORNIA

Coronado—Yates, J. C.
Long Beach—Sweet, R. B.
Los Angeles—Bonynge, C. W.
Reeves, J. W.
Merced—Davis, B.
Oakland—Schutz, M. H.
San Diego—Hosmer, C. M.
Marsh, O. G.
San Francisco—Bryant, F. J.

CONNECTICUT

Seymour—Perrins, H. B.

DISTRICT OF COLUMBIA

Washington—Macatee, H. C.
Vaughan, G. T.

FLORIDA

Pensacola—Brink, F. A.
Hutchinson, C. E.
Quina, M. E.

GEORGIA

Newman—Amis, F. J., Jr.

ILLINOIS

Chicago—Conger, S. B.
Coughlin, J. P.
Doktorsky, P. H.
O'Brien, T. J.
Oak Park—Meacham, H. F.

INDIANA

Bloomington—Woolery, H.
Kendallville—Williams, H. O.
Lebanon—Coons, J. D.

IOWA

Sioux City—Bellaire, R. F.
Woodbine—Flothow, M. W.

MARYLAND

Baltimore—Bawden, G. A.

MASSACHUSETTS

Boston—Goodpasture, E. W.
Sears, F. M.
Chelsea—Barrow, A. R.
Gardner—Jewett, E. P.
Watertown—Kilgore, A. R.
Wellesley—Anthony, G. C.
Weston—Van Nuys, F.

MICHIGAN

Battle Creek—Brainard, C. W.

MINNESOTA

Hector—Colby, W. L.

MISSOURI

Joplin—Moody, E. E.
Kansas City—Tyree, J. I.
St. Louis—Blank, O. E.
Windsor—Wall, H. M.

NEW YORK

Bay Shore—Low, J. T.
Brooklyn—Delany, J. J.
Eastmond, C.
Gallagher, V. J.
Stefano, J. J.
Cooperstown—Jarvis, G. L. B.
Great Neck Station—Bull, W. J.
Mineola—Sawicki, A. M.
New York—Banach, L.
Cady, L. B.
Conroy, J. E.
Greeberg, D.
Ruderman, L. M.
Vail, J. I. B.
Van Fleet, J. F.
Rochester—Edwards, H. W.
O'Brien, F. J.

NORTH CAROLINA

Charlotte—Guthrie, A. D.
Guthrie, W. G.
Norton—McGuire, B. B.
Wilkesboro—Rousseau, J. P.

OHIO

Columbus—Dodd, V. A.
Hugger, C. C.
Minthorn, H. A.
Curtice—Lorenzen, M. R.

OREGON

Falls City—Montgomery, G. W.
Portland—Ghormley, J. C.
Young, R. G.

PENNSYLVANIA

Easton—Krebs, S. A.
Harrisburg—Kilgore, F. D.
Hazelton—Hugo, J. A.
Philadelphia—Goldburgh, H. L.
Holloway, T. B.
McCullough, F. J.
Mott, E. L.
Schumann, E. A.
Sharkey, J. A.
Smith, F. W.
Treacy, A. J. M.
West, C. F.
Pittsburgh—Carson, W. E.
Scranton—Donahoe, J. P.
Shilington—High, I. B.

SOUTH CAROLINA

Charleston—Cannon, J. H.
Sosnowski, J. C.
Luray—Johnston, B. R.
Rock Hill—Hay, L. S.

TENNESSEE

Memphis—McCaughan, J. J.

TEXAS

Austin—Lasater, O. R.
Scott, Z. T.
Bonham—Davis, R. C.
Fort Worth—Anderson, J. F.
Houston—Lechenger, G. C.
Manor—Gregg, F. C.
Marlin—Smith, L. M.
San Antonio—Witt, G. F.

VIRGINIA

Charlottesville—Rixey, W. W.
Norfolk—Whitlock, S. B.
Richmond—Upshur, F. W.

WISCONSIN

Milwaukee—Frankel, A. H.
Horwitz, J. J.

CORRECTION

In the issue of March 22, under the heading "Honorable Discharges, Medical Corps, U. S. Army" appears the name of C. N. LARSON, Negaunee, Mich. This should have been Lieut. CARL NIEL LARSON, Detroit, Mich.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Arkansas

To Camp Meade, Md., from Camp Joseph E. Johnston, Capt. E. E. POYNER, Green Forest.

California

To Camp Kearney, Calif., as tuberculosis examiner, from Fort Bliss, Lieut. F. J. BARNET, Los Angeles.

To Camp Sherman, Ohio, base hospital, from Camp Sheridan, Capt. L. C. FROST, Los Angeles.

To Denver, Colo., from Camp Fremont, Capt. B. THOMAS, Palo Alto.

To Hoboken, N. J., from Camp Dix, Major G. J. McCHESNEY, San Francisco.

Colorado

To Denver, Colo., from Camp Dix, Capt. H. B. KILLOUGH, Pueblo.

Georgia

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Rochester, Minn.*, Mayo Clinic, for instruction, and on completion *to Walter Reed General Hospital, D. C.*, for instruction, and on completion *to Fort McPherson, Ga.*, from Fort Oglethorpe, Lieut. O. S. GILLILAND.

District of Columbia

To Walter Reed General Hospital, D. C., from Camp Dix, Capt. J. A. CAHILL, Jr., Washington.

Florida

To Lakewood, N. J., from Camp Dix, Capt. E. JELKS, Jacksonville.
To Washington, D. C., Surgeon-General's Office, from Camp Dix, Major J. D. MacRAE, Tampa.

Illinois

To Camp Meade, Md., from Miami, Fla., Major L. C. COLLINS, Chicago.
To Fort Des Moines, Iowa, from Camp Travis, Capt. D. N. EISENDRATH, Chicago.
To Fox Hills, N. Y., from Camp Sevier, Capt. G. U. LIPSHULCH, Chicago.
To Metuchen, N. J., Raritan Arsenal, from Camp Abraham Enstis, Lieut. L. L. TURNER, Chicago.
To Otisville, N. Y., from Long Beach, Capt. H. H. BAY, Chicago.
To report to the commanding general, Southeastern Department, from Camp Wadsworth, Lieut. W. E. CLAY, Mount Carroll.

Indiana

To Camp Zachary Taylor, Ky., base hospital, from Camp Custer, Lieut. R. C. OTTINGER, Indianapolis; from Camp Dix, Major J. P. SPOONER, Peru.
To Fort Sheridan, Ill., from Fort Oglethorpe, Capt. C. E. ORDERS, Indianapolis.
To Washington, D. C., Surgeon-General's Office, from Camp Dix, Major C. R. SOWDER, Indianapolis.

Iowa

To Biltmore, N. C., from Denver, Capt. T. B. LACEY, Glenwood.
To Plattsburg Barracks, N. Y., from Camp Custer, Capt. M. B. GALLOWAY, Webster City.

Kentucky

To Hoboken, N. J., from Camp Jackson, Lieut. W. J. FLOWERS, Columbia.
To New Haven, Conn., from Camp Shelby, Capt. V. A. BARL, Owensboro.

Louisiana

To Fort McPherson, Ga., from Camp Dix, Capt. C. D. BARKLEY, New Orleans.
To Fort Sam Houston, Texas, from Walter Reed General Hospital, Capt. J. T. O'FERRALL, Jr., New Orleans.

Maryland

To Baltimore, Md., and on completion *to Fort McHenry, Md.*, from Surgeon-General's Office, Major C. BAGLEY, Jr., Baltimore.

Massachusetts

To Camp Sherman, Ohio, base hospital, from Camp Dix, Lieut.-Col. P. P. JOHNSON, Beverly.
To Colonia, N. J., from Army Medical School, Major H. C. MARBLE, Boston.
To Fort McHenry, Md., from Army Medical School, Lieut. N. W. GILLESPIE, Boston; from Camp Upton, Capt. E. W. FISKE, Newton.
To Fort Snelling, Minn., from Camp Dix, Lieut. J. A. GOULD, Westboro.
To Fox Hills, N. Y., from Camp Lee, Lieut. W. R. SISSON, Boston; from Camp Upton, Lieut. G. A. WILKINS, Revere.
To Walter Reed General Hospital, D. C., for instruction, and on completion *to his proper station*, from Boston, Capt. A. G. RICE, Springfield; from Camp Upton, Lieut. H. L. HIRSCH, Springfield.
To Washington, D. C., Surgeon-General's Office, from Newport News, Major J. F. COUPAL, Boston.

Michigan

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. C. W. MERRITT, St. Joseph.
To Detroit, Mich., from Camp A. A. Humphreys, Lieut. C. F. DUBOIS, Detroit; from Plattsburg Barracks, Lieut. H. A. REYE, Detroit.
To Fort Sheridan, Ill., from Camp Custer, Capt. C. B. GAUSS, Palo; Lieut. W. B. MARTIN.
To Walter Reed General Hospital, D. C., from Camp Dix, Major R. E. BALCH, Kalamazoo.

Minnesota

To Chicago, Ill., from Lakewood, Capt. R. J. E. ODEN, Minneapolis.
To Walter Reed General Hospital, D. C., from Camp Lee, Lieut. C. K. HOLMES, St. Paul. For instruction, and on completion *to his proper station*, from Fort McPherson, Lieut. S. V. HODGE, Minneapolis.
The following order has been revoked: *To San Diego, Calif.*, Rockwell Field, from Riverside, Lieut. R. A. JOHNSON, Minneapolis.

Missouri

To Camp Jackson, S. C., base hospital, from Dansville, Capt. W. T. PATTERSON, Shelbina.
To Camp Zachary Taylor, Ky., base hospital, from Camp Shelby, Capt. E. L. DORSETT, St. Louis.
To Fort McHenry, Md., from Camp Dix, Lieut.-Col. W. T. COUGHLIN, St. Louis.
To San Francisco, Calif., Letterman General Hospital, from Fort Oglethorpe, Lieut. W. S. CULPEPPER, Willow Springs.
To St. Louis, Mo., from Fort McHenry, Lieut.-Col. W. T. COUGHLIN, St. Louis.

Nebraska

To report to the commanding general, Western Department, from Vancouver Barracks, Lieut. W. E. MOGAN, Petersburg.

New York

To Camp Dodge, Iowa, base hospital, from Camp Dix, Major H. A. DURHAM, New York.
To Camp Upton, N. Y., base hospital, from Camp Dix, Capt. J. J. PARSONS, Cortland.
To Camp Lewis, Wash., base hospital, from Camp Fremont, Capt. E. M. JOHNSON, New York.
To Camp Meade, Md., to examine the command for cardiovascular diseases, from Camp Sevier, Lieut. M. A. McIVER, New York.
To Camp Meigs, D. C., to examine the command for nervous and mental diseases, from Camp Dix, Capt. W. M. KRAUS, New York.
To Camp Pike, Ark., base hospital, from Camp Gordon, Major F. G. HODGSON, Elmira.
To Camp Upton, N. Y., base hospital, from Camp Dix, Capt. C. M. ALLABEN, Roscoe; from Hoboken, Lieut. E. A. SPIES, New York.
To Eastview, N. Y., from Camp Upton, Major C. E. COON, Syracuse; from Walter Reed General Hospital, Lieut. S. EPSTEIN, New York.
To Fort Logan H. Roots, Ark., from Camp Travis, Lieut. A. RAVICH, Brooklyn.
To Walter Reed General Hospital, D. C., for instruction, and on completion *to his proper station*, from Camp Upton Lieut. F. S. WETHERELL, Syracuse; from Fort Benjamin Harrison, Lieut. J. G. MORRISEY, Yonkers; from Fox Hills, Capt. L. H. FINCH, Amsterdam.
The following orders have been revoked: *To Camp Meade, Md.*, base hospital, from Fort Oglethorpe, Capt. H. R. WILLSE, Westfield. *To Fort McPherson, Ga.*, from San Juan, Major E. W. LEE, New York.

North Dakota

To Fort Sheridan, Ill., from Camp Dix, Capt. J. A. HALGRON, Bismarck.

Ohio

To Colonia, N. J., from Camp Dix, Major P. D. WILSON, Columbus.
To East Potomac Park, D. C., from Army Medical School, Lieut. F. BEEKEL, Cleveland.
To Fort McHenry, Md., from Camp Dix, Lieut. F. F. DAVIS, East Liverpool.
To Fort Sill, Okla., Post Field, from Fairfield, Ohio, Lieut. E. I. G. REINARTZ.
To St. Louis, Mo., from Camp Dix, Major P. G. BORDEN, Massillon.
To Washington, D. C., Surgeon-General's Office, and on completion *to Colonia, N. J.*, from Camp Dix, Major P. D. WILSON, Columbus.

Oregon

To Cape May, N. J., from Surgeon-General's Office, Capt. L. SELLING, Portland.
To San Francisco, Calif., Letterman General Hospital, from Camp Lewis, Capt. F. J. ZIEGLER, Portland.

Pennsylvania

To Camp Wadsworth, S. C., from Camp Jackson, Lieut. L. G. FLANNERY, Philadelphia.
To Cape May, N. J., from Camp Dix, Lieut. W. R. KRAUSS, Philadelphia.
To Fort Bliss, Texas, base hospital, from San Diego, Major A. W. YALE, Philadelphia.
To Fort McPherson, Ga., from Washington, D. C., Lieut. C. H. MANLOVE, Jr., Altoona.
To Fort Snelling, Minn., for consultation, and on completion *to Cape May, N. J.*, from Rochester, Minn., Major C. H. FRAZIER, Philadelphia.
To Otisville, N. Y., from Mineola, Col. A. J. SMITH, Philadelphia.
To Philadelphia, Pa., from Camp Upton, Lieut. P. A. LONERGAN, Dickson City.
To Walter Reed General Hospital, D. C., for instruction, and on completion *to his proper station*, from Carlisle, Major D. M. W. GRANT; from Lakewood, Capt. W. P. HUGHES, Pittsburgh.
To Washington, D. C., from Camp Dix, Lieut. L. W. HUGHES, Tioga. Surgeon-General's Office, from Camp Crane, Lieut.-Col. R. SLEE, Swiftwater.
The following order has been revoked: *To Cape May, N. J.*, from Camp Dix, Lieut. W. R. KRAUSS, Philadelphia.

South Dakota

To Fort Snelling, Minn., from Camp Lewis, Lieut. D. SUTTON, Redfield.

Tennessee

To Camp Gordon, Ga., from Camp Dodge, Lieut. M. E. CANNON, Riceville.

Texas

To Belleville, Ill., Scott Field, from Detroit, Capt. W. R. RUSSELL, Ben Hur.
To Camp Bowie, Texas, base hospital, from Camp Dix, Capt. G. W. DAY, Fort Worth.
To Fort Douglas, Utah, from Houston, Capt. O. P. GOODWIN, Lamasco.
To Fort McHenry, Md., from Camp Dix, Lieut. J. R. WHISENANT, San Antonio.
To Fort McPherson, Ga., from Camp Bowie, Lieut. D. C. BURKES, San Antonio.
To Fort Sam Houston, Texas, base hospital, from Camp Bowie, Major J. H. GAMBRELL, Dallas; from Camp Dix, Lieut. F. N. HAGGARD, San Antonio.
To Fort Sill, Okla., Post Field, from Dallas, Lieut. S. G. ODOM; from Millington, Lieut. G. P. RAWLS, San Augustine.
To Fox Hills, N. Y., from Camp MacArthur, Lieut.-Col. S. W. FRENCH.
To Houston, Texas, Ellington Field, from Camp John Wise, Major A. M. LEHMAN.
To San Antonio, Texas, Kelly Field, from Dallas, Capt. L. G. BUCHANAN, Big Springs.

Utah

To Camp Meade, Md., from Long Beach, Capt. H. B. FORBES, Ogden.

Virginia

To Camp Meade, Md., to examine the command for nervous and mental diseases, from Camp Lee, Lieut. J. A. STRICKLAND, Norfolk.
To Fort Sheridan, Ill., from Camp Custer, Capt. C. W. MERCER, Richmond.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Radium and Oncologic Institute.—Through the interest of Mr. King C. Gillette, the Radium and Oncologic Institute has been established in Los Angeles, and a fireproof building, to cost about $65,000, is now under construction. The building will contain laboratories for clinical research work, and has a modern and complete roentgen-ray equipment and more than 1 gm. of radium with the necessary emanation apparatus and appliances. The institution will afford, for a fee consistent with the financial condition of the patient, treatment of neoplastic diseases. Profits earned above those required for the expense and maintenance of the institution will be devoted to scientific and research work. Dr. Rex D. Duncan, Los Angeles, has been selected as medical director and will be assisted by a resident staff consisting of a pathologist, roentgenologist, physicist, and other necessary assistants. The institution will be ready for operation early in August.

ILLINOIS

New Hospital in Rock Island.—The new St. Anthony's Hospital, Rock Island, is almost completed and will be ready to receive patients early in June. The new building has been constructed at a cost of about $240,000, is five stories in height, fireproof and contains 150 rooms.

Institute of Medicine to Discuss Reconstruction.—At its meeting of April 19, held at the City Club at 8 p. m., the Institute of Medicine will discuss "Reconstruction." Col. Frank Billings will speak on "Physical Reconstruction of the Disabled," and Capt. A. E. Bott, C. A. M. C., on "The Mentality of Convalescence."

Nurses Continue Suit.—Although the strike of the nurses of the Oak Park Hospital was called off, two of the striking nurses are said to have filed a petition in the circuit court to have the hospital prosecuted for alleged violations of the law, and to force the hospital authorities to obey the ten hour law.

Personal.—Mark Greer, Lieut., M. C., U. S. Army, Vandalia, now on duty with the British Expeditionary Forces, has been commissioned Captain, M. C., and returned to the United States, and expects to be separated from the service in a few days.——William D. Chapman, Capt., M. C., U. S. Army, Silvis, has returned from military service, and resumed practice.——Dr. William H. Conser, Lieut., M. C., U. S. Army, Cambridge, who has been in France for eight months, has been honorably discharged.

Illegal Practitioner Fined.—April 3, the Department of Registration and Education of the State of Illinois secured the conviction in the courts of Madison County of Reverend Davis, a colored man who was practicing medicine without a license. He was fined $115 and sent to jail to work this out. The business cards used by this man announced that he was "the world's greatest wonder; born with a full set of teeth; talked in ten days after birth; revealed to his father, who is now 107 years of age, that he would live to be 112 years old; revealing spiritualist and stomach guarder."

Chicago

Hospital to be Dedicated.—It is announced that the remodeled Mount Sinai Hospital, 1519 South California Avenue, will be formally dedicated, May 4.

Chicago Drugs Found in San Francisco.—Federal authorities, April 12, arrested a man in San Francisco in whose luggage, which had been checked through from Chicago, were discovered habit-forming drugs valued at $10,000.

Industrial Surgery Meeting.—April 15, the Illinois Manufacturers' Association held a dinner and discussion on industrial surgery in connection with the Chicago Safety Council. Dr. Loyal A. Shoudy, Bethlehem, Pa., chief surgeon of the South Bethlehem Steel Corporation, spoke on "Fifteen Functions of an Industrial Surgeon," and Paul B. Magnuson, medical director of the Industrial Commission of Illinois, on "The Present Deficiency of Surgical Treatment and After-Treatment of Accidents." Dr. Leroy P. Kuhn, chief surgeon of the Illinois Manufacturers' Casualty Association, presided.

Tuberculosis Society Meeting.—At the meeting of the Robert Koch Society for the Study of Tuberculosis, at the city club, April 22, at 8 p. m., the subjects for discussion are "The Relation of Dust to the Spread of Tuberculosis," by Dr. Henry C. Sweany, and "The Prevention of Relapses in Cases of Arrested Tuberculosis in Soldiers and Sailors," by Dr. S. Adolphus Knopf of New York, with demonstration of massotherapy, hydrotherapy and respiratory therapy on a subject.

Personal.—Dr. Orville W. McMichael, formerly director of the Edward Sanatorium, Naperville, and consulting director of the Rockford Municipal Sanitarium, and more recently medical director of the Winyah Sanatorium, Asheville, N. C., has severed his connection with the latter institution, and resumed private practice in Chicago.——Lewis Wine Brewerman, Lieut.-Col., M. C., U. S. Army, in command of the 310th Sanitary Train, American Expeditionary Force, arrived in New York from France, April 10.——Payson L. Nusbaum, Major, M. C., U. S. Army, in command of Base Hospital Unit No. 12, American Expeditionary Forces, arrived in New York, April 2.——Kellogg Speed, Major, M. C., U. S. Army, returned, April 11, after a long term of service on the western front.

MARYLAND

Personal.—John M. T. Finney, Brig.-Gen., U. S. Army, Dr. Hugh H. Young, formerly Colonel, U. S. Army, and Dr. William S. Thayer, formerly Brig.-Gen., U. S. Army, Baltimore, were given the Distinguished Service Medal by Secretary of War Newton D. Baker, for exceptionally meritorious and distinguished service.——Dr. Clement A. Penrose, who has been ill at his residence in Baltimore, is slowly convalescing. While in France, Dr. Penrose was seriously ill with septic poisoning, and his present condition is the result of the poisoning.

Clinic for Women.—In line with the lectures on motherhood, which are being given in Baltimore by Dr. J. Whitridge Williams, Baltimore, in connection with the School of Hygiene and Public Health, a clinic for women will be organized at the Johns Hopkins Hospital sometime within the year. The clinic now in use there has about seventy beds; the new clinic will have 150. This has been made possible by an anonymous gift from a woman of $400,000 to be used for the building. The teaching staff and equipment will be supplied by the General Education Board. The second of the motherhood lectures given by Dr. Williams and sponsored by the Women's Section of the Maryland Council of Defense was held, April 10, at McCoy Hall, and dealt with "Reproduction and Heredity." The need not only for these lectures but also for the women's clinic is demonstrated by the report of the Federal Children's Bureau on maternal mortality, in which it is shown that annually about 15,000 women die in childbirth in this country whose deaths might have been prevented by proper care.

MASSACHUSETTS

School for Physicians to Open.—The opening of the "School for Doctors," under the direction of Drs. Richard C. and Hugh Cabot is announced at the Massachusetts General Hospital by Dr. Joseph B. Howland. Clinical and pathological conferences will be held every Tuesday from 12 to 1.

Putnam Memorial Professorship.—An effort is being made to raise $50,000, of which more than half has already been pledged, for the endowment of a professorship of diseases of the nervous system, in memory of Dr. James Jackson Putnam, Boston, who inaugurated the neurologic clinic at the Massachusetts General Hospital in 1872, and who devoted more than forty years of service to its interests and to teaching in Harvard University Medical School. In 1893, Dr. Putnam was appointed the first professor of diseases of the nervous system, but the chair was then, and is still, without endowment.

Personal.—Dr. Eoline B. C. DuBois, Springfield, has returned after a year of service, and resumed practice.——Dr. Samuel W. Ellsworth, after service in France, has been reinstated in his position in the roentgen-ray service at the Boston City Hospital, and Dr. Patrick F. Butler has been reassigned as assistant physician in this department.——Frederic A. Washburn, Lieut.-Col., M. C., U. S. Army, organizer of Massachusetts General Hospital Unit, which operated at Base Hospital No. 6, Bordeaux, has returned from France.——Dr. Horace D. Arnold, Boston, has resigned as director of the Graduate School of Medicine of Harvard University.

MINNESOTA

Y. W. C. A. Given Mayo Home.—Dr. and Mrs. Charles H. Mayo have presented their town house in Rochester to the Young Women's Christian Association of the city.

Clinical Association Organized.—At a meeting of thirty-seven physicians and interns of the medical staff of the Minneapolis City Hospital, March 28, a constitution and by-laws were adopted. At the next meeting, April 25, a scientific program will be presented.

Public Health Nurses Now Available.—The bill authorizing city and village councils, boards of county commissioners, and town boards to employ public health nurses has passed both houses of the legislature. Under directions of this bill, public health nurses are now legally available throughout the state.

Personal.—Clarence C. Burlingame, Major, M. C., U. S. Army, Fergus Falls, formerly on the staff of the state hospital, has been decorated by the Polish government.——Charles R. Ball, Lieut., M. C., U. S. Army, St. Paul, who has been on duty at American Red Cross Hospital No. 1, Paris, since September, 1918, has returned home.——Dr. Gustav A. Renz, assistant chief city health officer of St. Paul, is reported to be seriously ill with malignant disease of the mouth and throat.

MISSOURI

State Association Meeting.—The annual meeting of the Missouri State Medical Association will be held at Excelsior Springs, May 26 to 28, with headquarters at the Elms Hotel.

Fordyce in St. Louis.—At a meeting of the St. Louis Medical Society, April 12, a paper was read by Dr. John A. Fordyce, New York, professor of dermatology and syphilology in the College of Physicians and Surgeons in the City of New York, on "The Results Obtained in the Treatment of Neurosyphilis by Intraspinal Injections."

Personal.—Arthur Gundlach, Capt., M. C., U. S. Army, St. Louis, who was secretary of the St. Louis Medical Society when he accepted a commission in the Medical Corps of the Army, has been honorably discharged and has returned.——Dr. Albert F. Koetter, who has been acting as secretary in Dr. Gundlach's absence, resigned on Dr. Gundlach's return and the council thereupon reelected Dr. Gundlach secretary.——Dr. Dora Green Wilson, Kansas City, sustained a fracture of the left clavicle, March 17, in a collision between her motorcar and a street car.

NEW JERSEY

Tuberculosis Clinic Opens.—The antituberculosis clinic at 82½ Lexington Avenue, Passaic, was opened to the public, April 8. The rooms are to be open every Tuesday and Friday from 3 to 5 p. m., and are in charge of Dr. Joseph F. A. Rubacky.

Marriage Examination Law.—Under bills passed in the House, April 8, a physician's certificate becomes a prerequisite to marriage in New Jersey. The purpose of the bill is to prevent the marriage of persons afflicted with contagious or infectious social diseases. The bill provides that the fee of a physician for making the necessary examination before the issuance of a certificate shall not exceed $2.50, and county physicians will be required to make such examinations gratuitously to indigent applicants. The bill was indorsed by the officials of the U. S. Public Health Service and the state department of health, and was approved by the Surgeon-Generals of the Army and Navy.

NEW MEXICO

Personal.—Dr. James F. Chalmers, East Las Vegas, has resumed charge of the Santa Fe Railway System Hospital at Fort Madison, succeeding Dr. Bishop, who has been transferred to Topeka, Kan.

Governor's Signature Alone Required.—The public health bill has become practically a reality, lacking only the governor's approval. The house bill was passed by the senate, March 13, with a large number of amendments in which the house concurred, March 14.

Medical Board Appointed.—The governor, March 22, appointed the following board of medical examiners for the state: Drs. Miguel F. Desmarais, Las Vegas; Charles B. Kohlhousen, Raton; Creighton H. Ferguson, Tucumcari; John A. Reidy, Albuquerque; Robert E. McBride, Las Cruces; Carey B. Elliott, Dawson, and Jose M. Diaz, Santa Fe.

NEW YORK

Medical Club Meeting.—At the annual meeting of the Utica Medical Club, March 20, Dr. Hyzer W. Jones was elected president, and Dr. Arthur M. Johnston, secretary-treasurer.

Clinic Opens.—A free medical clinic under the auspices of the Geneva Board of Health was opened, March 27, in the board of health rooms in the city hall under the charge of Dr. F. Lansing Stebbins. The clinic will be open every Thursday afternoon until further notice, and all children in the city under 16 years of age are requested to visit the clinic and be examined.

Public Health Nurse Preparation.—Under the auspices of the New York State Department of Health, with the cooperation of the Rochester Health Bureau, Rochester Tuberculosis Association and the Monroe County Red Cross branches, a course of study in public health nurse preparation is being given this month at the University of Rochester, under the direction of Dr. Bertis R. Wakeman, Hornell, sanitary supervisor of the New York State Department of Health.

Personal.—Dr. Paul G. Taddikin, superintendent of the Buffalo State Hospital, has resigned to become superintendent of the Ogdensburg State Hospital.——Dr. Fowler A. Watters, health officer and city physician of Lockport, for twelve years past, has resigned, and Dr. Thomas E. Spalding, Lockport, has been appointed to fill the unexpired term.——Michael J. Thornton, Major, M. C., U. S. Army, Albany, has been promoted to Lieutenant-Colonel, M. C., U. S. Army, and has returned from abroad.——Dr. Milton P. Messinger, Oakfield, who has been on duty with the American Red Cross in France since October, has returned home.——Milton Chapman, Capt., M. C., U. S. Army, Rochester, who was on duty with the 42d Field Artillery on the western front, has returned and will resume practice.

New York City

Surgical Society Elects.—At its annual meeting, April 9, the New York Surgical Society elected Dr. William A. Downes, president; Dr. John A. Hartwell, vice president, and Dr. Ransom S. Hooker, secretary.

New Hospital for Drug Addicts.—A new hospital, recently established by the health department on North Brother Island, will be devoted to the treatment of drug addicts. The hospital has a capacity of 200 beds, and will receive patients committed by the courts as well as self-committed persons who desire to be cured of the drug habit.

Personal.—Robert Emery Brennan, P. A. Surg., U. S. Navy, has been given an honorable discharge.——Dr. Joseph A. Blake, formerly surgeon of the American Hospital at Neuilly, near Paris, sails for New York, April 19.——Dr. Irving F. Wallace, in charge of the maternity school at Bellevue Hospital, has resigned and will resume practice.——Dr. William L. Wolfson, Brooklyn, announces his return from France and resumption of practice, April 13.——Dr. Laura M. Riegelman, Brooklyn, has been placed in charge of the bureau of child hygiene for the department of health of Brooklyn, replacing Dr. John H. Plath.——Dr. David S. Flynn has been appointed director of the state employment bureau.

NORTH CAROLINA

Student Nurses Strike.—After sending in a petition to the trustees for better food, higher wages and more privileges, twenty-two student nurses of the Rex Hospital, Raleigh, quit the institution on strike.

Memorial to Nurses.—Patriotic citizens of Raleigh have arranged for a memorial to the volunteer nurses who cared for the sick during the recent influenza pandemic. For this memorial it is proposed that two public drinking fountains be erected.

Full-Time Health Officer.—Vance County has recently made arrangements to have a full-time health officer, arranging with the state board of health and the International Sanitary Commission for an intensive health campaign. There will be an office assistant to the health officer, and a nurse for rural sanitation and infant hygiene work. Forsythe, Davidson, Lenoir, Pitt, Robeson, Rowan, Nash, Northampton and Wilson counties are each now operating similar intensive health plants. The average typhoid fever deaths in the nine counties from 1914 to 1917 was 120 per year, with a death rate of 35.2. During 1918 there were only twenty-four deaths from typhoid in the nine counties, the rate being 7.8. During the war the whole-time health work was suspended in Vance County.

PENNSYLVANIA

Officers Return from Abroad.—John W. Burkett, Lieut., M. C., U. S. Army, Moon Run, and John F. Golden and Robert T. Hood, Lieuts., M. C., U. S. Army, Pittsburgh, have returned from abroad.

Three Years' Accidents Cost $30,000,000.—Nearly $30,000,000 have been awarded in three years under the provisions of the workmen's compensation act for the injured and families of those killed at their work. In three years, 6,668,348 accidents show that labor casualties furnish a startling comparison with those on the battlefield. The fatalities for the period reached 9,143.

To Improve Sanatoriums.—Extensive improvements are planned for the state's three tuberculosis sanatoriums at Mont Alto, Crescent and Hamburg, carrying on to a still greater efficiency the work done by the late Dr. Dixon. Plans have been drawn by the present commissioners of the health department for alterations and improvements at the three institutions which will cost approximately $300,000 for Mont Alto and $100,000 each for Crescent and Hamburg.

Physicians and Industries Get Together.—The acting commissioner of labor and industries has offered the services of the state to enable industries and physicians and surgeons to get together, because of the numerous requests for information regarding opportunities for industrial service in Pennsylvania which are being received from medical officers discharged from the military service. This feature of the state work is in the hands of Dr. Francis D. Patterson, Harrisburg, chief of the Bureau of Hygiene.

Philadelphia

Reception for Surgeon-General.—A reception was held by the Medical Club of Philadelphia for Major-Gen. Merritte W. Ireland, M. C., U. S. A., at the Bellevue-Stratford, April 18. Major William Keen, M.D., LL.D., was elected to honorary membership in the club.

Schools Insanitary.—According to the annual summary of investigation of schools submitted by Dr. Bernard Kohn, acting director of medical inspection of public schools, 101 schools are enumerated, as overcrowded, 75 lack sufficient illumination, 90 have inadequate yard space, 64 are deficient in exits and fire escapes, and 26 are insufficiently equipped with drinking water accommodations.

Gift to a Hospital.—A new maternity building to take the present site of the Smith Memorial Hospital of the Lankenau Institution and to cost about $125,000 has been donated by Charles H. Smith, a brother to the president of the Lankenau Hospital. The proposed new building will have a greater capacity than the one now in use, and while there will be several private rooms the donor will permit the construction of the building only with the definite assurance that it will be used entirely for poor women.

Personal.—Dr. Alexander C. Abbott, professor of hygiene at the University of Pennsylvania, and in charge of sanitary supervision for the Second Army, American Expeditionary Forces, has been promoted to colonel.——Walter A. Wood, Capt., M. C., U. S. Army, now in charge of the evacuation hospital at Coblenz, Germany, has been promoted to major.——Philip Atlee Sheaff, Major, M. C., U. S. Army, who has been with U. S. General Hospital No. 36, Detroit, as chief of the medical service, has been discharged and has returned to his practice in this city.——Lieut.-Col. Thomas H. Johnson, on duty with Base Hospital No. 29, University of Pennsylvania Unit, has been awarded the médaille d'honneur des épidémies by the French government.——Joshua E. Sweet, Major, M. C., U. S. Army, on duty with Base Hospital No. 10, has been promoted to lieutenant-colonel.——J. Chalmers DaCosta, Lieut.-Com., U. S. Navy, sailed on the *George Washington*, April 11, for France.

VIRGINIA

Personal.—Dr. William S. Keister, Roanoke, has been in conference with the state health officer of Alabama and is considering the acceptance of the position of field director of sanitation. This will include the charge of the five units cooperating with the International Health Board. Dr. Keister recently returned after ten months' service with the American Expeditionary Forces.

Must Report Vital Statistics.—The state board of health has served notice that all physicians and undertakers who fail to report vital statistics or fail to secure burial permits will be prosecuted. Dr. Oscar E. Bevins, Dungannon, is said to have pleaded guilty recently to the charge of failure to report three births, and was fined $5 on each offense. An undertaker of Broadway was fined on each of three charges of failure to report deaths and failure to secure burial permits.

CANADA

University Principal Resigns.—Principal Sir William Peterson of McGill University, Montreal, has resigned, and Sir Auckland C. Geddes, formerly professor of anatomy, has been appointed to succeed him.

Smallpox in Quebec.—Dr. Elzéar Pelletier, Montreal, of the provincial board of health of Quebec, reports an unusual number of cases of smallpox throughout that province. Fifty localities are affected, and there are more than 400 cases in the province. There are 1,200 municipalities in Quebec province, and 716 have adopted a resolution to establish compulsory vaccination. Some parishes in the neighborhood of Montreal are affected, and the provincial board of health has been made a center to direct the campaign against the incipient epidemic.

LATIN AMERICA

Workmen's Compensation.—Recently enacted legislation, officially promulgated by the vice president of Brazil by decree of Jan. 15, 1919, provides compensation for workmen killed or injured in the performance of labor or contracting disease in the performance of such labor, the laborer, his family or his heirs being entitled to receive such compensation from the employer.

GENERAL

Gorgas en Route to Ecuador.—Major-General William C. Gorgas, former Surgeon-General of the Army, and a party of sanitary experts arrived in Panama, April 3, and left April 7, for Guayaquil, Ecuador, to investigate sanitary conditions in that place and country.

Encephalitis.—This disease has appeared at the following places, among others, since April 1: Wallace, N. C.; Des Moines and Emmettsburg, Iowa; Chicago and Aurora, Ill.; St. Joe, Mich.; La Crosse, Wis.; Fargo, N. D.; Kansas City, Mo.; New Orleans, Alexandria and Lake Charles, La., and Birmingham, Ala.

Transportation of Sick and Wounded.—During March, 20,080 patients were transferred by the evacuation officer at Hoboken, N. J., to hospitals in various parts of the country, and these transfers were made from debarkation hospitals without a single accident. March 29, a hospital train left Hoboken with 2,011 patients, the largest record for transporting sick and wounded for a single day.

Personal.—Miss Lucy Minnegero, Fairfax, Va., chief nurse of the American Red Cross Unit, which was sent to Kief, Russia, in 1915, and later was superintendent of nurses at Columbia Hospital, Washington, D. C., and who since 1917, has been in charge of the preparation of the Red Cross nurses for assignment overseas, has been appointed superintendent of the U. S. Public Health Service Nurse Corps.

For a Campaign Against the Fly.—In the interest of a fly-killing and prevention campaign, the agricultural extension division of the International Harvester Company is distributing a pamphlet giving methods and materials for fighting the fly, and offers to lend charts and lantern slides for the use of persons or organizations in communities where fly-killing campaigns are to be conducted. The fly-breeding season is here, and efforts expended now will have the best results.

Funds Urged for Venereal Disease Control.—In a telegram sent out to state boards of health by the Surgeon-General of the U. S. Public Health Service, April 1, it was announced that the following sixteen states had already made appropriation for venereal disease control: Texas, Alabama, West Virginia, Maine, Washington, North Dakota, South Carolina, Delaware, New York, Utah, Wyoming, Oklahoma, Arizona, Oregon, Wisconsin and Iowa, and it was urged that the remaining states take immediate action to secure the federal aid available for this work.

Bequests and Donations.—The following bequests and donations have recently been announced:

Harvard Medical School, an anonymous donation of $50,000 for the establishment of the James C. Melvin fund for tropical medicine, the income to be used for research in medicine.

Hartley Laboratory, Columbia University, a gift of $2,000 by Mrs. Helen Hartley Jenkins.

For additions to the medical school buildings of the College of Physicians and Surgeons in the City of New York, a donation of $1,000 from Mrs. V. Everett Macy.

The German Hospital and Dispensary, Mount Sinai Hospital, Home for Aged and Infirm Hebrews, Montefiore Home for Chronic Diseases and Charity Organization Society of New York City, each $2,500; National Jewish Hospital, Denver, $2,500; Lebanon Hospital, St. Mark's Hospital for Deformities and Joint Diseases, and Mount Sinai Hospital Training School for Nurses, New York, each $1,000, and the United Hebrew Charities, $5,000, by the will of Emil Schweinburg.

FOREIGN

Personal.—Dr. T. A. Henry, superintendent of the laboratories of the Imperial Institute, London, has been appointed director of the Wellcome chemical laboratories.——Dr. F. L. Pyman has been appointed professor of technological chemistry in the Manchester Municipal College of Technology and the University of Manchester.——Dr. Janet Mary Campbell, London, has been appointed a medical officer of the British Local Medical Board with special charge of the work in respect to maternity and child hygiene.——Dr. George Barger, research chemist to the Medical Research Committee of the National Health Insurance, has been appointed to the chair of chemistry in connection with medicine at the University of Edinburgh.

Deaths in the Profession Abroad.—The *Nederlandsch Tijdschrift* reports the death of Dr. **F. Schauta,** professor of gynecology and obstetrics at the University of Vienna since 1891, aged 70. The list of his works and manuals on these specialties is a long one, but his name is best known, perhaps, by his advocacy of the vaginal route for operations on the uterus.——Dr. **E. W. Nordenson,** a leading Swedish ophthalmologist, prominent in public health work and in the work of the Swedish Medical Association. He was especially watchful over the character of the advertisements accepted for the publications of the association, including its monthly, *Hygiea*. His principal monographs were on detachment of the retina and on nervous diseases affecting vision. He had had a private eye clinic at Stockholm for nearly thirty years. ——Dr. **F. Carriazo** of Seville, Spain, a specialist in radiology since 1897. In 1915 he had to have a finger amputated on account of a roentgen cancer and recently succumbed to the effects of its generalization.

CORRECTION

Child Welfare Congress to Be Held in Montevideo in May, 1919.—In our issue of February 15, Medical News section, we published an item taken from an exchange to the effect that the second Congreso Americano del Niño (Child Welfare Congress) which was to have been held at Montevideo, Uruguay, last December, had been postponed until May, 1920. In a cablegram just received from Dr. Luis Morquio of the above mentioned city, he states that the congress will be held in May of this year.

BUENOS AIRES LETTER

Buenos Aires, March 13, 1919

The Spanish Edition of The Journal

The edition in Spanish of The Journal of the American Medical Association is meeting with a most favorable welcome.

Entrance Examinations

The evident lowering of the standards of the secondary studies in recent years has impelled the Facultad de Medicina to insist on an entrance examination in physics, chemistry and natural sciences, in addition to the diploma of graduation which they have hitherto accepted as sufficient without necessity for further examination. The recent graduates of the national *colegios* have petitioned for the abrogation of these entrance examinations, insisting that the diploma of graduation should entitle them to admittance to the medical school. The latter, however, has legally the right to exact such examinations as it deems proper. The entrance examination was demanded by both professors and alumni on different occasions. One of the reasons which led to its adoption was the excessive number of matriculates in the first years of the medical course. Some of the courses had 800 inscribed which large number rendered practical instruction for all impossible. As 75 per cent. of the matriculates failed to conclude the course, it was deemed best to make a selection from the beginning and avoid the drawbacks of carrying a large number of students who are wasting their time in studies they will be unable to complete.

Opening of the Medical School Year

The school year will be officially inaugurated, March 20, in the Facultad de Medicina with a solemn session, the dean, Dr. J. Mendez, presiding. The classic date for opening the school has always hitherto been March 15, and the opening occurred without any ceremonies.

Epidemics in Northern Argentina

The epidemic of plague which has been prevailing in certain districts of the Jujuy and Salta provinces has declined. The death rate has been considerable as very acute cases and the septicemic forms were frequent. New cases of exanthematous typhus have appeared in the province of Jujuy, especially at Tilcara. The cases are isolated, which is not surprising as the zone affected is mountainous and the population scanty.

There has been a recrudescence of malaria. The Dapartamento Nacional de Higiene has organized anew the sections for defense against malaria. These sections had been reduced or suppressed entirely in the last few years. Complaints are being received as to an insufficient supply of quinin.

Reorganization of the National Public Health Service

In February the reorganization of the Bacteriologic Institute of the Departamento Nacional de Higiene was officially approved. The technical personnel were declared in commission about a year ago. Most of the personnel have been confirmed in their appointments but the new assistants were appointed directly, without any competitive examination such as has always been the rule hitherto.

Funds for the Public Hospitals and Charity Work

A subscription was recently collected to increase the funds available for the Asistencia Publica of the capital; the amount collected has not yet been made public.

At the time of the carnival festivities, the Asistencia Publica also was authorized to organize a festival in the Avenida de Mayo, that is, in the principal avenue of the city; the sums realized therefrom to be devoted to the city hospitals. The festival was a success, but owing to inefficient management of the entrance payments, the sum realized amounted only to $8,000.

LONDON LETTER

London, March 27, 1919.

The Influenza Epidemic

The third wave of the influenza epidemic has now ended. The deaths from the disease recorded for the ninety-six great towns of England and Wales last week numbered 3,218, compared with 3,889 the previous week. In London the deaths numbered 597, as against 808. The mysterious periodicity which the disease seems to have established for itself has been maintained. This periodicity is roughly twelve weeks. The first wave began in July and died down about the end of August—a two months' course. Twelve weeks after the beginning of the first wave—at the beginning of October—the second wave began to flow. This wave was spent by the middle of December. Again twelve weeks after the beginning of the second wave, that is, in January, the third wave appeared. It had begun to spend itself in the first days of March. If this periodicity is continued we may look for a fourth wave, beginning some time in April and ending about the first week in June.

Medical Graduate Course in London

Further particulars of the medical graduate course in London (The Journal, March 8, p. 742) may be given. Arrangements have been made with all the medical hospital schools, two other general hospitals, and the following special hospitals: Cancer, Chelsea Hospital for Women, Hospital for Children, National Hospital for Diseases of the Heart, National Hospital for the Paralysed and Epileptic, Queen's Hospital for Children, Hackney Road, St. Mark's Hospital for Diseases of the Rectum, St. Peter's Hospital for Urinary Diseases. Arrangements are being made for a definite course of daily lectures and demonstrations on special subjects at the Royal Society of Medicine. Graduate instruction has received a great stimulus from the large number of physicians in the armies of the dominions and the United States who are taking the opportunity while in Europe of profiting by their sojourn here. In the case of the dominion armies, special leave for three months for this purpose is granted to medical officers. For many years, attempts have been

made to put graduate teaching in London on a satisfactory basis but, as stated in previous letters, without success. A new spirit has been awakened since the war, and it is recognized that the impossibility of resorting to the German schools for some years to come furnishes a great opportunity. A public meeting is about to be held in London under the chairmanship of Sir William Osler when a scheme, which has received the approval of the London medical schools, will be considered. It is proposed that the instruction shall comprise general and special courses, and that after attending one of the latter a graduate may apply to the teacher responsible for the courses for permission to do research work under him or to act as his clinical assistant. Thus after attending a course on children's diseases of orthopedics he could, if regarded as sufficiently qualified, stay on at the hospital as clinical assistant, or do research under the physician for children's diseases or the orthopedic surgeon. Those who have given graduate instruction in the London graduate schools and special hospitals in the past will continue to do so in cooperation with the other teaching institutions working with the association, which include all the undergraduate medical schools in London. The medical schools of the United Kingdom will be invited to cooperate with the London association in providing periodic courses to run concurrently, especially at times, such as the summer months, when those seeking to attend courses will probably exceed the number that can be dealt with adequately in London. The recently formed British Association of Radiology and Physiotherapy has agreed to cooperate.

Birth Control

In view of the fact, mentioned in my last letter, that in the last quarter there were in England and Wales 79,443 more deaths than births, special interest attaches to the meeting of the National Birth Rate Commission (instituted by the National Council of Public Morals). Dr. C. K. Millard, health officer for Leicester, dealing with the declining birth rate, said that the question of the birth rate was intimately bound up with that of birth control. It was unfortunate that scientific study of the subject had been hitherto neglected. Owing to the supposed moral stigma many had tabued it, and it was only quite recently that unbiased discussion had become possible. The subject was of special interest and importance at the present day, through conditions arising out of the war. In many parts of Europe the social conditions of the people, with starvation staring them in the face, without proper clothing or shelter, with civilization itself breaking down, were deplorable in the extreme. It appeared to him eminently desirable that rigid birth control should be practiced in those countries, and probably in others also, if acute maternal suffering and terrible infant mortality were to be avoided. The best thing for the people of those countries to do was temporarily to stop having children, so far as it could be avoided, until happier and more prosperous times arrived. It seemed to have been taken for granted in most countries that rapid increase of population was needed in the national interest, and that a stationary population would be disastrous. No doubt this sentiment was really based on militarist considerations, and in the past, when such considerations were vital, it might have been wise to encourage it. But now, with the international situation fundamentally altered, and with the League of Nations (whose special function it would be to safeguard the nations with small populations), it was time to reconsider our attitude. International competition in birth rates was to be avoided, just as was competition in armaments. There were certain countries which were already "saturated" as regards population, in the sense that any further increase would not tend to increase the happiness or prosperity of the inhabitants. Wherever that point had arrived, or was nearly at hand, he regarded birth control as the proper remedy, and as greatly preferable, in most cases, to emigration. The case of our own country was complicated by the fact that she was the mother country of an empire. Many people would agree that the population of the British Isles was large enough, but they wanted to see our great colonies filled up with an all British population. No doubt this was very patriotic, from the standpoint of conditions before the war; but from the point of view of the League of Nations we ought to regard our colonies as the natural outlet for the surplus population of all European countries. It was so necessary for the peace of Europe that such an outlet should exist that we need not be in any hurry to see those territories filled up. As to the question of practical methods, physicians had not given it sufficient attention to enable them to speak very authoritatively. Certain physicians, with obviously a strong bias on moral grounds, had condemned all methods as highly injurious, and the bishops in the special report on this subject presented to the Pan-Anglican Conference in 1908, had seized on isolated medical opinion of this kind and used it as though it were the considered verdict of the medical profession. To ascertain what was the real opinion of the profession of the present day, Dr. Millard had recently issued a questionnaire to medical practitioners, and from some eighty replies received he was quite satisfied that the great majority of the profession did not regard birth control as necessarily injurious.

The Venereal Danger to the Troops of the Occupied Area

Attention has been called in the press to the venereal danger to which the British troops, largely young soldiers, are exposed in the occupied portion of Germany. The Germans took elaborate precautions for the health of their troops in town areas, and on the whole were successful. They isolated and kept under surveillance all women suffering from contagious diseases; but when it became known that the Allied troops were to occupy the town, these women were released. A German official interrogated on the subject said that they had "escaped." Many of their towns, among which Cologne has a certain notoriety, have proved hotbeds of disease, and there is some reason to believe that pains have been taken in a manner not infrequently adopted by conquered people in the East to endanger our troops. It is reported that since the occupation, venereal disease has become much more prevalent among them. The government has been asked to take the requisite precautions.

PARIS LETTER

PARIS, March 13, 1919.

An American Hospital to Be Established in France

Colonel House has informed M. André Tardieu, general commissioner of Franco-American War Welfare, of the project to create in Paris a hospital to be built by Americans in commemoration of soldiers of the United States who died in France during the war. This matter was submitted to Colonel House by Dr. Kenneth Taylor who, during the four years of the war, has devoted himself particularly to the question of hospitalization in France, and is now director of an American Red Cross Hospital, No. 2 rue de Puccini, Paris. This institution would care for French and Allied patients, and would also strengthen the union between French and American medical men, by giving courses teaching American medical students French methods, and demonstrating American methods in the clinics which would be open to French students. This hospital would be a center of French and American documentation and would serve likewise as a training school for French and American nurses.

Compulsory Notification of Tuberculosis

This question was discussed recently by the Académie de médecine. Dr. F. Bezançon, professor of bacteriology in the Paris medical faculty, presented the report of the Commission permanente de la tuberculose. The conclusions on which the discussion hinged were as follows: "The Commission permanente de la tuberculose is of opinion that compulsory notification is one of the fundamentals in the campaign against tuberculosis, but that it is merely one phase of the work; the campaign against alcoholism and against insanitary dwellings should likewise command the attention of legislators. The attending physician should register the case, and by making the notification to the health officer, he does not violate professional secrecy. This does not preclude notification by the party most interested or by the head of the family. Notification should be limited to open cases of pulmonary tuberculosis, and it should not be enforced until the prophylactic measures and necessary assistance can be realized. The committee seizes this occasion to request that the Académie vote a resolution asking for the creation of an Institut national d'hygiène for the purpose of promoting hygiene and training competent hygienists."

This subject was also discussed by the Société médicale des hôpitaux de Paris. Dr. Emile Sergent would restrict notification at present to the open cases of pulmonary tuberculosis, cases in which the diagnosis is confirmed by demonstrating the tubercle bacillus in the sputum, such bacteriologic examination to be made in a reliable laboratory and to be accepted only when two successive examinations have been positive.

Dr. Dufour would register not only the open cases of pulmonary tuberculosis, but all cases of suppurating tuberculosis, of bone, for example, which may spread contagion

He is strongly opposed to requiring bacteriologic proof based on special laboratory examination, but would hold the attending physician responsible.

Dr. Guinon believes that to demand the finding of the tubercle bacillus will leave unregistered many cases of tuberculosis.

Dr. H. Méry did not agree with these statements at all. They would require the notification even of cases of tracheobronchial gland tuberculosis. He would register all cases of contagious tuberculosis. This would exclude from the schools all teachers who are contagiously tuberculous.

Drs. Béclère, Brocq and Milian would provide the means for fighting the disease first, before insisting on compulsory notification.

Dr. Crouzon recalled that the war has compelled compulsory notification in the army with all its consequences of care for the sick, before and after their discharge from the army, and has resulted in creating an organization to fight the disease. The proposed law for compulsory notification of tuberculosis provides for an allowance to the families, and asks for an appropriation of 84 million francs to build hospitals, dispensaries, sanatoriums, disinfection centers, etc., and for the annual expense of maintenance. Crouzon believes, therefore, that under these conditions the principle of declaration cannot be rejected.

Dr. Armand-Delille, former chef de clinique in the Paris medical faculty, was of the opinion that such notification would be of great educational value to the public, but that it should be limited to cases of open pulmonary tuberculosis, because cases of open surgical tuberculosis do not spread bacilli much. Among 180,000 repatriates whom he examined at Evian he found about 1,400 cases of tuberculosis, in 30 per cent. of which tubercle bacilli were found. He concluded, therefore, that there are not more than 100,000 tuberculous individuals in France whose disease is contagious. He regards the present as a favorable time for notification because many buildings and measures installed by the Service de Santé militaire are now available for use in the campaign against tuberculosis.

Bezançon was formerly opposed to compulsory notification, but he is now an ardent advocate of this measure. This is because, along with the notification, many measures of great value are now being proposed. At the Conseil général de la Seine, the Office publique de lutte antituberculeuse is now engaged in the planning of dispensaries, hospitals and sanatoriums for the isolation and treatment of the tuberculous; in child welfare work; the establishment of school colonies; the campaign against slums, providing clean, sanitary homes, etc. What are the objections to this measure? It cannot prove objectionable to the family, because the notification will be made only to the sanitary inspector and he will order proper measures to be taken only if the family itself cannot provide the means to effect them. The attending physician should always state on the notification slip that the proper precautions have been taken, when this is so.

Dr. Carnot and Dr. Barbier, on the other hand, are opposed to this new measure believing that it will end only in failure.

American Red Cross Gives a Sanatorium

Miss E. Hoyt, secretary of the Commission de la Croix Rouge américaine in France, and Major A. H. Garvin, chef du Bureau de la tuberculose, have advised M. Autrand, prefect of the département de la Seine, that the American Red Cross, wishing to give evidence of its sympathy with the work of the Office publique d'hygiène sociale, and its great appreciation of the organization of the campaign against tuberculosis in the département de la Seine, will donate to the département for the use of this commission the sanatorium at Yerres (département de Seine-et-Oise).

M. Autrand expressed his heartfelt thanks for this generous act which again shows the valuable assistance which has been rendered to the sick, wounded and unfortunate French by the American Red Cross.

Personal

Dr. C. Achard, professor of pathology and general therapeutics in the Paris medical faculty, has been named professor of clinical medicine at his request. Dr. Cluzet, professor of medical physics in the Lyons medical faculty, has been named professor of physics, biology, radiology and physiotherapy.

Dr. Vincent, medical inspector and director of the laboratory of antityphoid vaccination and of serotherapy for the army, has been named inspector of the hygienic and epidemiologic services of the army, while still retaining his present activities.

Deaths

Joseph Ephraim Sawtell ✠ Kansas City, Kan.; College of Physicians and Surgeons, Baltimore, 1886; aged 59; also a member of the Kansas Medical Society; professor of rhinology and otolaryngology in the University of Kansas, Lawrence; president of the Kansas State Medical Society in 1907-1908; for several terms president of the Wyandotte County Medical Society; formerly a member of the State Board of Medical Examination and Registration; a member of the staff of St. Margaret's, Bethany, Belle Memorial, Christian, and St. Joseph's hospitals; died at his home, April 4, from pneumonia.

Russell Cisney Parson ✠ **Capt., M. C., U. S. Army,** Ambridge, Pa.; Jefferson Medical College, 1914; aged 27; who entered the service, Aug. 15, 1917; and after a special course in roentgenology, and tours of duty at Fort McHenry, Md., and Camp Gordon, Ga., was sent overseas with Evacuation Unit No. 13, and served as roentgenologist in the Toul Sector until December, when he was transferred to Camp Hospital No. 91 at Le Banle; died at that place, March 1, from epidemic lethargic encephalitis.

Lyman Henry Hills, Binghamton, N. Y.; New York University, New York City, 1863; aged 81; a member of the Medical Society of the State of New York; in 1870 president of the Otsego County Medical Society, and in 1899 president of the Binghamton Academy of Medicine; consulting physician to the Binghamton City Hospital; for several years a member of the local board of education, and for two terms coroner of Broome County; died at his home, March 21.

William Henry Comegys, Col., U. S. Army (retired), New York City; Miami Medical College, Cincinnati, 1876; aged 66; who entered the Army as an acting assistant surgeon in 1879 and served in the Geronimo campaign; and in 1881 was appointed major and paymaster, serving in that department until 1911, when he was retired at his own request after more than thirty years of service; died in the Presbyterian Hospital, New York City, March 31.

Francis Joseph Duffey ✠ **Lieut.-Col., M. C., U. S. Army,** Brooklyn; Long Island College Hospital, Brooklyn, 1896; aged 44; a member of the New York Academy of Medicine; who recently returned from service with the American Expeditionary Forces in France; assistant visiting physician to the Post-Graduate Hospital and the Neurological Institute; died, March 31, from heart disease, while in attendance on a patient in Manhattan.

William Elton Guthrie ✠ Bloomington, Ill.; Rush Medical College, 1881; aged 61; a specialist in surgery; local surgeon of the Chicago and Alton, and Lake Erie and Western railroads; once president of the Illinois State Medical Society; died in the Presbyterian Hospital, Chicago, April 6, a week after an ileostomy had been performed to relieve intestinal obstruction due to malignant disease.

James Harvey Wright ✠ Pittsburgh; University of Buffalo, N. Y., 1878; aged 70; for several years city physician of Allegheny; a member of the staff of the Allegheny General Hospital since its organization; consulting physician to St. John's General Hospital; died in the West Penn Hospital, Pittsburgh, March 25, after a surgical operation.

Louis-Edouard Desjardins, Montreal, Que.; Ecole de médecine et de chirurgie, Montreal, 1864; Toronto School of Medicine, 1873; aged 81; who became professor of ophthalmology in his alma mater in 1882, and later was made professor emeritus; one of the pioneers of the French-Canadian medical institutions; died at his home, March 2.

Paul Herman Dernehl ✠ Milwaukee; Johns Hopkins University, Baltimore, 1907; aged 40; a specialist in ophthalmology; a member of the American Academy of Ophthalmology and Oto-Laryngology, and a member of the staff of the Columbia, Children's and Mount Sinai hospitals, Milwaukee; died at his home, March 28, from diabetes.

John J. Hislop ✠ **Capt., M. C., U. S. Army,** Miner's Mills, Pa.; Jefferson Medical College, 1892; aged 53; who entered the Army, Aug. 27, 1917, and after serving at Camp Wheeler, Macon, Ga., was discharged on account of physical disability, Dec. 10, 1918; died at his home, March 5, from cardiorenal disease.

Austin B. Allen ✠ Maryville, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 69; a specialist in pediatrics; a member of the staff of Ensworth Hospital, St.

✠ Indicates "Fellow" of the American Medical Association.

Joseph, Mo.; examining surgeon to the Omaha and St. Louis Railroad; died at his home, March 24, from arteriosclerosis.

William J. Andrews, Lakeside, Ohio; Medical College of Ohio, Cincinnati, 1865; aged 75; surgeon of U. S. Volunteers throughout the Civil War; a charter member of the Delaware County (Ind.) Medical Society; died in the Scarlet Oaks Sanitarium, Clifton, Cincinnati, March 26.

William Latimer Hall ✠ **Lieut., M. C., U. S. Army,** Freedom, Okla.; Emory University, Atlanta, Ga., 1915; aged 29; who entered the United States service, June 1, 1918, and was sent to France, November 5; died in Marseilles, France, February 10, from bronchial pneumonia.

John R. Smith, Cleveland; Western Reserve University, Cleveland, 1879; aged 64; for several years professor of materia medica in his alma mater, and for three years house physician of Lakeside Hospital; died at his home, March 24, from cerebral hemorrhage.

Mary Elizabeth DeLong Pope Westcott, Lansing, Mich.; New England Female Medical College, Boston, 1865; aged 86; for several years a member of the faculty of her alma mater; died at the home of her daughter in Lansing, March 27, from bronchitis.

Edwin Jackson Kibbe ✠ Aurora, N. Y.; College of Physicians and Surgeons in the City of New York, 1906; aged 39; until recently superintendent of the Queen Alexandra Sanatorium, London, Ont.; died in Aurora, about March 29.

Bradner Earl Gorham ✠ **Lieut., M. C., U. S. Army,** Kent, Ohio; Grand Rapids (Mich.) Medical College, 1903; aged 37; who recently returned from military service; died in Lakeside Hospital, Cleveland, March 26, from pneumonia.

William Hilt, Pensauken, N. J.; Jefferson Medical College, 1884; aged 72; for many years a reporter on Philadelphia newspapers, and assistant city editor of the Philadelphia *Public Ledger;* died at his home, March 28.

Thomas Stratton Roberts, Long Beach, Calif.; Medical College of Ohio, Cincinnati, 1870; a member of the South Dakota State Medical Association; for many years a practitioner of Sioux Falls; died at his home, March 30.

William Beidler, Akron, Ohio; Medical University, Columbus, 1897; aged 51; a member of the Ohio State Medical Association; died at his home, March 28, from epidemic lethargic encephalitis following influenza.

David Clair Vosler ✠ Ellwood City, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1894; aged 48; formerly captain, M. R. C., U. S. Army; died at his home, March 19, from organic heart disease.

John R. Absher, Foss, Okla.; University of Tennessee, Nashville, 1892; aged 62; was dragged by a cow he was leading, sustaining injuries as a result of which he died in the Clinton (Okla.) Hospital, March 27.

Eli Judson Peck, East Norwalk, Conn.; Bellevue Hospital Medical College, 1884; aged 70; for twenty-five years a practitioner of New York City; also a graduate in veterinary surgery; died at his home, April 3.

James Alexander Hutcheson, Lynbrook, N. Y.; Long Island College Hospital, 1874; aged 62; for several years health officer of Hempstead, L. I.; died at his home, March 30, from septic lymphadenitis.

George Edward Henderson ✠ **Capt., M. C., U. S. Army,** Brooklyn; Long Island College Hospital, Brooklyn, 1907; aged 34; on duty with the 330th Field Artillery; died in France, February 12.

Cyrus Henry Pendleton, Hebron, Conn.; Western Reserve University, Cleveland, 1860; aged 88; a member of the Connecticut State Medical Society; died at his home, March 6, from heart disease.

Benjamin Fidler ✠ New York City; Long Island College Hospital, Brooklyn, 1903; aged 47; radiotherapist and roentgenologist in the Mount Sinai Dispensary; died at his home, March 26.

Randall E. Poindexter, Benton, Ill.; Northwestern University Medical School, 1892; aged 56; local surgeon of the Illinois Central Railroad; died at his home, March 25, from heart disease.

George Willis Crosby ✠ Sheboygan, Wis.; University of Michigan, Ann Arbor, 1884; aged 57; a specialist in genitourinary diseases; died at his home, March 24, from cerebral hemorrhage.

Charles Milton Sawyer, National Soldiers' Home, Me.; Jefferson Medical College, 1872; aged 69; died in the National Soldiers' Home, February 11, from arteriosclerosis.

John Francis Abel ✠ Chicago; Northwestern University Medical School, Chicago, 1879; aged 61; surgeon to the Southside Hospital; died at his home, April 3, from pleuropneumonia.

Charles Frederick Dole, Sharon, Mass.; Harvard University, Medical School, 1900; aged 43; a member of the Massachusetts Medical Society; died at his home, March 25, from paresis.

John Henry Bradsworth, Paterson, N. J.; New York Homeopathic medical College, New York City, 1881; aged 70; also a druggist; died at his home, March 20.

Simeon Otho Francis, White Bear Lake, Minn.; Minnesota Hospital College, Minneapolis, 1884; aged 58; died at his home, January 30, from cerebral hemorrhage.

Josiah Swinney, Bloomfield, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 61; once coroner of Davis County; died at his home, March 22.

Deborah K. Longshore, Topeka, Kan.; Woman's Medical College of Pennsylvania, Philadelphia, 1872; aged 77; died in Topeka, March 24; from heart disease.

Elton James Bassett, Taunton, Mass.; Harvard Medical School, 1869; aged 74; a member of the Massachusetts Medical Society; died at his home, March 16.

Noe Dumont, Little Falls, Minn.; Ecole de Médecine et de Chirurgie, Montreal, 1887; aged 56; health officer of Little Falls; died at his home, March 26.

Richard Henry Lawlor ✠ Methuen, Mass.; Dartmouth Medical School, Hanover, N. H., 1898; aged 47; died at his home, February 12, from influenza.

Roy Oliver Thompson ✠ Imperial, Calif.; College of Physicians and Surgeons, Los Angeles, 1914; aged 32; died in Imperial, March 25, from influenza.

Wade Hampton Sherrill, Philadelphia; Jefferson Medical College, 1916; aged 29; died at the home of his mother at Sherrill's Ford, N. C., March 25.

Bennie U. Spickard, Gem, Texas; University of Tennessee, Nashville, 1917; aged 40; died at his home, March 9, from pneumonia following influenza.

William Stark, Cincinnati; University of Berlin, Germany, 1858; aged 82; died at the home of his son in Cincinnati, March 9, from myocarditis.

Emanuel Sipes ✠ Jacksonville, Ill.; Cincinnati College of Medicine and Surgery, 1887; aged 69; died at his home, March 1, from pneumonia.

Edward James O'Brien ✠ Cheboygan, Mich.; Detroit Homeopathic College, 1910; aged 39; died in a hospital in Detroit, about March 26.

Lewis B. Griffith, Philadelphia; Hahnemann Medical College, Philadelphia, 1880; aged 61; died at his home, March 31, from heart disease.

Edward Stiles Allen ✠ Providence, R. I.; Bellevue Hospital Medical College, 1876; aged 63; died at his home, March 29, from heart disease.

John Henry Pflueger, Holmen, Wis.; Starling Medical College, Columbus, Ohio, 1879; aged 65; died at his home, March 24, from heart disease.

Stanley F. Heskett, Chicago; College of Medicine (Physio-Medical), Chicago, 1887; aged 57; died at his home, March 29, from nephritis.

Marriages

WILLIAM ERNEST KRAMER; Capt., M. C., U. S. Army, to Miss Kate Irene Peebles of Lawrenceville, Va., at Richmond, Va., March 26.

LEO FLEISCHER STIENDLER, Capt., M. C., U. S. Army, Douglas, Ariz., to Miss Lucile Isabel Smith of San Antonio, Texas, March 8.

WILLIAM BERRY MARBURY, Capt., M. C., U. S. Army, to Miss Violetta Carroll Mercer, both of Washington, D. C., April 2.

BURTON JAMES LEE, Lieut.-Col., M. C., U. S. Army, to Miss Louise Freeman, both of New York City, March 29.

FRITZ ERNST BUCHEN, Wisdom, Mont., to Miss Frieda Louise Martini, at Butte, Mont., March 28.

SAMUEL HERMAN LIPPITT to DR. ELEANOR SCHOLL CUSHING, both of Milwaukee, April 7.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

GERMANY AND THE AMERICAN CHEMICAL INDUSTRY

Extracts from the Report of the Alien Property Custodian on the Chemical Industry

The average government report is notoriously dry and uninteresting. There are exceptions. The most recent of these exceptions is the chapter in the report of the Alien Property Custodian, A. Mitchell Palmer, recently made public which deals with "The Chemical Industry." This part of the report should be read by every man, physician and layman, who is interested in the larger industrial and scientific problems of the day, but especially should it be read by every physician.

At the outset, Mr. Palmer points out that the field of chemical industry was perhaps the most difficult of the many problems which his office was expected to solve. Chemical industry in the United States was saturated through and through by German influence, and in no branch of human endeavor was the myth of the German superman more firmly fixed in the public mind. The United States was flooded with chemists who were German either by origin, training or tradition. The chemical industry was certainly the most remunerative and probably the strongest of all Teutonic industries in the United States. The report briefly outlines the history of the German chemical industry. It shows how natural advantages and national characteristics combined to give Germany an advantage over the rest of the world.

GERMANY'S ADVANTAGES

"Labor was cheap, docile, and stable. On the other hand, the national habit of mind was peculiarly fitted for chemical research work, and particularly for the interminable tasks presented by such research, in the way of exhausting the immensely numerous possible combinations available within a particular field. From the first, scientific attainment, and particularly accomplishment in the field of research, appealed strongly to the public mind. Men of science, and particularly research workers, were more highly regarded than in other countries. This tendency was strongly fostered by the government, which, by conferring honors and titles, did everything possible to exalt the position of the successful scientist.

"As a consequence of these conditions, the universities were at an early date provided with the most elaborate and advanced equipment for research work, and attracted to themselves an extraordinary proportion of the ablest young men of the nation. They accordingly proceeded to turn out a constantly increasing number of highly trained technical men, whose services were available to the rising chemical industry. The number of these men was such that the inevitable competition between them for places made the average salaries exceedingly small. Highly skilled service was, therefore, available to the German chemical manufacturer at an extraordinarily low cost. In this respect he had a marked advantage over the manufacturers of any and every other country in the world."

These advantages did not give the German supremacy in the manufacture of what are known as "heavy chemicals," such as sulphuric acid, soda ash, etc. It did, however, give them an advantage, in fact it gave what was to all intents and purpose a world monopoly in two other great branches of chemical industry, which call for more difficult and complicated processes—that is, the practical application of organic chemistry to the manufacture of dye stuffs and medicinals. "The complexity of the manufacture of dye stuffs, as a business proposition," says the report, "is almost beyond belief." Nevertheless, over 900 distinct dyes were sold in appreciable quantities in the American market alone, before the war, each product requiring a separate and distinct process of manufacture, "one differing from the next in many cases as widely as if the products had been those of unrelated industries."

BY-PRODUCTS OF ECONOMIC AND POLITICAL VALUE

While all of these dye stuffs and many of these pharmaceuticals are derived from coal-tar, "they descend from this common ancestor by an enormous number of separate family lines." There are ten "crudes" which form the starting point of practically all the processes leading up to the production of dyes. From these ten there are more than 300 "intermediates" produced by more or less complex chemical reaction. While from the intermediates an almost infinite number of possible dye stuffs may be made.

The problem is, of course, largely restricted by the limitations of chemical laws. The most valuable of the modern dyes are derived from anthracene, obtained from the original coal-tar. The tar distiller, in producing anthracene, also produces or wastes enormously greater quantities of naphthalene, benzol and other crudes. The same principle obtains in subsequent steps of the complex processes of dye manufacture, whereby at each step large quantities of by-products are produced. The result is that the finished dye must either be sold at a tremendous price or else commercial uses must be found for the by-products. Some of these by-products have been found to have medicinal value, and have become established as pharmaceuticals.

"The most important feature, however, of this production of by-products is the relation which it bears to the explosive industry. All the most important explosives of the present day are either coal-tar products or the result of chemical processes requiring the use of coal-tar products. In a large dyestuff factory there is an unavoidable production of considerable quantities of substances which are directly available for conversion into explosives. A still more striking example is that of paramononitrotoluol. This is an intermediate necessarily made in quantities often beyond the needs of the dye makers. To the end of the last century many thousand tons of this substance had accumulated in the German dye works, which were making frantic efforts to find uses for it in dye making. About 1904 these efforts suddenly ceased. Trinitrotoluol (TNT) had been adopted as a military explosive, and every pound of the accumulation was directly available for easy conversion into this most formidable of high explosives."

GOVERNMENTAL SUBSIDIES

The report points out that three things were inevitable as the German dye industry developed. One was the necessity of immense resources in the way of capital and technic to carry out the business. The second, following as a result of the first, was that it was inevitable that large research laboratories must be maintained to work out the varied problems of disposing of by-products. The third was the government control of the dye industry because of its intimate relation with the explosive industry, and much was done by the German government "to insure the prosperity of the dye industry and its immediate convertibility to the production of munitions." This highly specialized industry, aided as it was by the government, led to overproduction, which in turn led to a determined effort to establish and maintain a large export trade.

KILLING AMERICAN INDUSTRIES

"The natural advantages of the German industry, as compared to the industry in other countries, prevented serious competition in Germany itself. The government's tariff and other policies enabled home prices to be kept up. It was then evidently to the advantage of any manufacturer to produce far more than he could sell in the home market, even if his export trade had to be carried on at a loss, when by so doing he could use a process so economical that his profits on home trade would be largely increased. Accordingly, German dyestuffs began to appear in every country at prices which domestic manufacturers could not meet. The inevitable result was that in country after country the domestic manufacture was destroyed or stifled in its cradle. As soon as this had been accomplished, it was no longer necessary for the German exporters to sell at or below cost. Prices were immediately raised and handsome profits realized. The tendency to this result was recognized by the Germa[illegible] govern-

ment from the first, and every facility was afforded to the growing export trade. It was fully realized by both the civil and military authorities that if a world monopoly in the dyestuff industry could be built up the military strength of Germany would be colossally enhanced, since it alone of all the great powers would then be in a position to secure immediate supplies of the vast quantities of munitions likely to be needed in modern war."

Specific instances of the German dumping policy are given in the report which shows, too, the way in which American manufacturers were forced to the wall. In addition to this, the Germans took advantage of the patent laws of the United States. "For example, Bayer alone accumulated in the neighborhood of 1,200 such patents which were placed in the hands of one of its subsidiary companies." In spite of the patents having been taken out, the German concerns made no effort, except in a few instances, to manufacture the products patented in the United States, showing that "these patents were obviously obtained and held in order to prevent the formation of an American dye industry and to make impossible importation from outer countries. The latter of these two purposes seems to have been the more important in the German mind. They seem to have had no fear that any American industry could be established on a competing basis."

GERMAN INDUSTRIAL FRIGHTFULNESS

The tactics thus described, while ruthless, were at least technically legal, but the report also shows that in addition to dumping and destructive underselling "the methods of the great German houses in carrying on their business in this country, were from the first, honeycombed with corruption." The head dyers in various mills and other important customers of the dye manufacturers were directly and indirectly subsidized. The Alien Property Custodian reports that this corruption was so extensive that he came across only one American consumer which had escaped its ill effects.

"This concern, the United Piece Dye-Works of Lodi, N. J., avoided the difficulty by having all its dyes purchased by the head of the company himself, under contracts providing that no barrel or package should show the name of the manufacturer. The company was thus able to designate the dyes which its dyers were to use solely by its own arbitrary numbers, and the dyers were thus unable to determine whose dyes they were using and to whom they should look for their graft."

In addition there appears to have been an organized propaganda intended to discourage American attempts to establish a dye industry in this country. "It seems to have been regarded as the duty of a good German chemist in the United States to preach the doctrine of the invincibility of the German chemical industry, the impossible difficulty of the processes involved in the manufacture of many important dyes, and the hopelessness of procuring the necessary technically trained men and skilled labor outside of Germany."

The result of all this was that up to August, 1914, the American industry in dyestuffs and medicinals consisted of little more than a series of rather small assembling plants. Although American manufacturers had from time to time attempted to make some of the various intermediates, the industry was killed almost at its inception by German price cutting. As a result, practically the entire American industry, small as it was, operated on German intermediates, and as such existed on the sufferance and was at the mercy of the German producers.

AMERICAN PHARMACEUTICAL HOUSES

"In medicinals very little real American manufacture existed. A few of the coal-tar pharmaceutical products were produced by two American houses in St. Louis, the Mallinckrodt Chemical Works and the Monsanto Chemical Works. By far the most important factor in this field, however, was the New York house of Merck & Co., which was a branch of the world-famous firm of E. Merck of Darmstadt, and has accordingly as such been taken over. The enormous dispensing and distributing business of such firms as Parke, Davis & Co., Lilly & Co., and Powers-Weightman-Rosengarten Co., successful and efficient as it was beyond comparison with similar businesses in any other country, seems to have involved very little real manufacture, and the materials used were largely imported. There seems to have been but little, if any, German interest in this branch of the industry, except among small brokers and dealers."

The vital character of the dye industry, says the report, is not due to its financial importance, although at the outbreak of the war these dyes were absolute essentials to industry, producing, perhaps, $2,500,000,000 worth of goods annually. Its real importance rests on "the fact that the technical skill and equipment provided by a successful dye industry furnished the means, and almost the sole means, to which every nation must look for advances in the application of chemical science to practical undertakings."

THE "BIG SIX"

Recording the fact that in the opening of the year 1914 nine tenths of the dyes used in American industry came from Germany and the bulk of them from the six huge German corporations which practically controlled the business, the report discusses, in interesting detail, the ramifications of the "Big Six" in American industrial life. The six firms were: (1) *Badische Anilin und Soda Fabrik*, Ludwigshafen on the Rhine, which the report for convenience briefly designates as "Badische"; (2) *Farbenfabriken vorm. Friedr. Bayer & Co.* in Leverkusen, shortened in the report to "Bayer"; (3) *Actien-Gesellschaft für Anilin-Fabrikation* in Berlin, abbreviated to "Berlin"; (4) *Farbwerke vorm. Meister Lucius & Bruning* in Hoechst-am-Main, briefly, "Hoechst"; (5) *Leopold Cassella, G.m.b.H.* in Frankfort, and (6) *Kalle & Co, Aktien-Gesellschaft* in Biebrich.

"At this time [January, 1914] each of these six giants was represented in this country by a subsidiary American corporation. The agent of "Bayer" was Bayer & Co. (Inc.), a New York corporation, while in the Synthetic Patents Co. (Inc.), another subsidiary, was vested the ownership of the 1,200 American patents taken out by the parent house. This New York company also owned other subsidiaries, including the Hudson River Aniline Works, through which it had established its Albany factory. "Berlin" was represented by the Berlin Aniline Works, also a New York corporation. Kalle & Company were operating through a third New York corporation, also called Kalle & Company. In these three cases all of the stock of the American house was admittedly owned outright by the parent organization. All three were accordingly taken over at the outset. The great Badische Co. acted through the Badische Co. of New York, the stock of which appeared on the books to be owned by Messrs. Adolph Kuttroff, Carl Pickhardt, and their chief employees. Leopold Casella & Co. were represented by the Casella Co., also a New York corporation, the stock of which appeared to be owned by its president, Mr. William J. Matheson, and its vice president, Mr. Shaw. Hoechst operated through a New York company known as Farbwerke Hoechst, of which the stock stood in the name of its president, Mr. Herman A. Metz. Of these gentlemen, Messrs. Kuttroff and Pickhardt were Germans by birth and Americans by naturalization. Messrs. Matheson and Shaw, Americans by birth and tradition, and Mr. Metz, American by birth. An extensive investigation was instituted by my bureau of investigation under the direction of Mr. Francis P. Garvan, and as the result of a long-continued and strenuous effort it was at last shown that the ostensible ownership of the stock of these three branches was not genuine but that each remained in fact owned by its German progenitor. As will hereinafter appear in the detailed accounts of these proceedings, each of these three companies has also been taken over."

GERMAN INDUSTRIAL CAMOUFLAGE

The report also points out that up to about 1910 all of the great German houses shipped their goods to their American representatives on a consignment basis, the representatives being paid wholly by commission. The prosecution, in 1912, of an officer of the Farbenfabriken of Elberfeld (later Bayer & Co., Inc.) for some of the corrupt practices in the way of bribing buyers, gave an insight into the German industry, and showed that it might be attacked under the Sherman law, as a conspiracy in restraint of trade. Suits were commenced against most of the American representatives.

"The institution of these suits, which were subsequently settled, resulted, in at least two cases, in a transfer by the Germans of their stock in the American company to the

officers of that company. In the case of Badische Co., the stock of which was already in the names of the American representatives, it was only necessary to change the basis of the business from consignment to sale. This was done in all the cases, so that the German house might appear not to be doing business in this country through its representative, but to be merely selling to an apparently independent American corporation. There was on the surface no apparent reason why these transfers should not have been genuine. Each German house really controlled the situation with reference to its agent because it could instantly ruin its agent's business by withdrawing supplies. Accordingly, for a considerable period these houses escaped more than mere general suspicion, and it was not until the Bureau of Investigation of my department had acquired considerable familiarity with German methods of comouflage that the true situation could be disclosed."

Then follows a description of the various devices resorted to by many of these German concerns after the war started, to prevent the chemical industry of the United States from aiding the Allies, and the close relationship between these concerns and the imperial German propaganda, is touched on.

"At the time when I took office, it, of course, became the duty of all companies in which any alien enemies held stock to report such ownership. About half of those American chemical enterprises which are now known to be German owned complied more or less promptly with this requirement. The rest mostly relying on pretended transfers by which the stock had ostensibly been put in the hands of American citizens, paid no attention to the act until the activities of the Bureau of Investigation had disclosed the true facts. In some cases, however, the camouflage which concealed the true ownership was of a much subtler and more effective description. In the case of more than one of the companies which promptly reported themselves as entirely German owned, measures had been taken to transfer to companies which were presumably beyond the reach of the Trading-with-the-Enemy Act, the essential value of the German property and business."

BAYER & CO.

Particularly interesting to the medical profession is the custodian's report of the methods of Bayer & Co., Inc.:

"This company at an early date reported all its stock as held by one of the officers, Mr. Seebohm, for three trustees who in turn held for the benefit of the German parent house. It was, on the whole, the most important of all the German branches. Besides representing, as sales agent, one of the three equal giant concerns at the head of the German industry, it was the only German branch which had established any considerable manufacture in this country. Through the purchase of the stock of the Hudson River Aniline Works, it had acquired and greatly expanded a considerable plant near Albany, N. Y., in which it produced a few of the simpler coal-tar colors and considerable quantities of pharmaceuticals, especially the most valuable single product of the German house—the drug known throughout the world by its trade name of Aspirin. This was a patented coal-tar product on which enormous profits had been made. Practically the entire management of this company was in the hands of German subjects. The leading spirit, Dr. Hugo Schweitzer, was, as has been stated, among the most ardent propagandists and German agents in the country. The Albany plant represented the expenditure of many hundred thousand dollars, and the enterprise was exceedingly flourishing.

"To conceal the profits for the purpose of taxation another company was organized, known as Synthetic Patents Co. (Inc.), all the stock of which was also held by the German concern, to which were conveyed all the American patents of the German house, approximately 1,200 in number, and all the real estate, including the plant. By contracts between Bayer & Co. (Inc.), and Synthetic Patents Co. (Inc.), almost all of the profits of the former were diverted to the latter in the form of rentals and royalties. The investigation also covered a number of less legitimate evasions of the tax laws, and resulted in the recovery of a large sum by the Treasury."

In this connection it is interesting to read that the Bureau of Investigation "discovered that the treasury of Bayer & Co. (Inc.) was one of the great sources from which German propaganda funds in this country were derived." The details of the Alien Property Custodian's report on another one of the "Big Six" has especial interest to the medical profession; namely, that relative to the Farbwerke vorm. Meister Lucius & Bruning, in Hoechst-am-Main, referred to more briefly by the custodian as Hoechst.

THE FARBWERKE-HOECHST CONCERN

"The American branch of the great Hoechst Co. had for many years been conducted by Mr. Herman A. Metz. Prior to 1912, the New York corporation was known as H. A. Metz (Inc.), and a majority of its stock was always owned by the parent house. In that year the German company took over all but 10 shares of the minority stock which had previously stood in the name of Mr. Metz, leaving him the record owner of these 10, the only shares not held by them. At the same time the name of the New York corporation was changed to Farbwerke-Hoechst, so that the value of the good will might be firmly fixed in the German name. At about this time the antitrust proceedings above referred to were commenced against these companies also. Mr. Metz settled for $40,000 the suit commenced against his company, and proceeded to make strong representations to the German house to the effect that the stock ought to be owned by him so that it could be asserted that the German house was no longer doing business in America. A prolonged negotiation ensued, the Germans being very reluctant to make any change. At last in the summer of 1913 it was arranged that the 1,990 shares held by the German concern should be transferred on the books to Mr. Metz; that in return he should execute a demand promissory note without interest for the sum of $597,000; that the note should be delivered to the German company and the stock, together with a suitable transfer properly executed, should be deposited to the sole order of the German concern in a Montreal bank, as security for the note.

"At this time and for many years previous the American company had been operating under a contract by which the German house appointed it its sole American sales agent and agreed to furnish it with goods in return for which the profits were to be divided according to an arbitrary scale, irrespective of stock ownership. Under this arrangement the Germans were to have one half the profits of the color business and 75 per cent. of the profits of the pharmaceutical business, which, owing to the development of salvarsan and novocaine, had become of great importance. In return, and as a check on possible overcharges by the German house, Mr. Metz was to receive a percentage of their profits on the sales to the American company. An irrevocable power of attorney was given to Mr. Metz to vote the stock owned by the German company in the New York house and an option was reserved to the German company to purchase the stock in the event of Mr. Metz's death or retirement.

"This contract was continued unaltered after the stock transaction of 1913, and under it the profits were divided as long as it was possible to remit moneys to Germany. There was also an oral understanding between the parties that the note should not be payable except out of the stock or its proceeds, and that it could not be demanded as long as Mr. Metz should remain president of the company. It will thus be seen that the whole stock dealing produced no change whatever upon the rights of the parties. After it, as before, the share in the profits of each party remained the same, power to secure and pass title to the certificates remained as before in the hands of the German company alone; the voting power remained as before in Mr. Metz's hands; in fact none of the incident of ownership was in any way affected by the transaction.

"At the outset, Mr. Metz filed reports stating the existence of the note and the fact that certain stock was deposited as security for the same, but it was not until the ascertainment of the entire history of the transaction that the proof could be obtained that the transfer was not and was not intended to be of any effect. At last, however, the investigation thoroughly demonstrated this, and the stock has accordingly been taken over by me.

"During the course of the year 1916, Mr. Metz, finding that he could no longer secure from Germany supplies of pharmaceuticals, especially salvarsan and novocaine, which formed the most profitable part of his business, determined to enter upon their manufacture in this country. Correspondence with the German house proving unsatisfactory, he sent his brother, Dr. G. P. Metz, to Germany to secure the necessary permission. This permission was refused, but the latter came home with a sufficient knowledge to permit the commencement of the work. A new company was organized under the name of H. A. Metz Laboratories (Inc.), a New York corporation, and this company commenced the manufacture of these two inval-

uable medicinals, which has been continued since our entrance into the war under license from the Federal Trade Commission."

Almost as interesting are the details given in the report about the Badische Company of Ludwigshafen; of the Roessler & Hasslacher Chemical Company; and the Heyden Chemical Works, and the Bauer Chemical Company, the latter known as the manufacturers of the patent medicines "Sanatogen" and "Formamint." The stock of the Bauer Chemical Company, really the property of a Berlin concern, appeared, by a fictitious transaction, to have passed into the hands of a New York lawyer, who is now under indictment for his participation in other proceedings relative to another company. The stock of Merck & Company of New York appeared on the face to be owned exclusively by George Merck, but according to the custodian's report, investigation showed that the profits of this company had always gone to the German house in a manner utterly inconsistent with the apparent stock ownership. According to the report, George Merck insists that he is really the owner of one third of this stock, by virtue of the fact that he owns 20 per cent. interest in the Merck concern of Darmstadt. The Alien Property Custodian, however, held that indirect ownership of this kind could not be recognized, and has determined that the whole of the Merck stock is enemy owned.

The report closes with a description of the corporation that has been founded, to be known as the Chemical Foundation, Inc., in which practically every American manufacturer of importance will be a stockholder. The problem of this corporation is to acquire by purchase the German patents, which in the past have formed such a colossal obstacle to the American dyestuff industry. These will be held as a trustee for American industry and "for the Americanization of such institutions as may be affected thereby, for the exclusion or elimination of alien interests hostile or detrimental to the said industries, and for the advancement of chemical and allied science and industry in the United States." The Alien Property Custodian has sold to this company, by Executive Order, for the sum of $250,000, approximately 4,500 patents. It is believed that the organization of the Chemical Foundation will constitute the most important step in the protection of the new industry. A tariff has in the past proved utterly unavailing. In the future it would doubtless prove equally so, for, as the report says, Germany has so much to gain by extending its foreign trade and destroying the industry in other countries, that it would undoubtedly give away its goods in the United States for nothing in order to recover the American market.

THE JOURNAL realizes that this attempt to abstract this intensely interesting and valuable report is far from satisfactory, but it hopes that it may stimulate physicians to go to the trouble of getting a complete copy of the Report of the Alien Property Custodian.

Steps to Eradicate Defects in Youths.—The Maryland board of education has adopted measures with a view to eradicating physical defects in the youth of the state, following the submitting of figures at a recent meeting in McCoy Hall by Dr. M. Bates Stephens, superintendent of education, showing an alarming condition among young men. Dr. Stephens showed that in the first draft call for Maryland there were 21,644 young men ranging from 21 to 31 years, of whom 9,117 were rejected as physically unfit for military service. The percentage of unfit was entirely too high and could be greatly reduced by preventive measures. Greater stress on school sanitation, proper schoolhouse architecture, mandatory medical school inspection, instead of the present optional law, and larger provision for physical education in the schools, would be no small contribution toward better health conditions. Dr. William Burdick, Baltimore, supervisor of physical education, reported that the federal government has allotted $6,000 to Maryland to be expended in maintenance of a course of hygiene in the normal schools. He also reported that a beginning has been made to adjust the daily program so that physical exercise may be given regularly.

Correspondence

THE FOXHALL FOSSIL HUMAN JAWBONE

To the Editor:—In the year 1867, a Dr. Robert Hanham Collyer published an account of a fossil human jawbone which was found at a place called Foxhall, near Ipswich. In the days when this specimen was discovered, it was regarded as being in every way improbable that the human race was in existence in the Pliocene period to which the jaw was referred. But our knowledge has now greatly advanced, and we have now found flint implements at the same geological horizon at which the Foxhall jaw occurred. Prof. Arthur Keith, of the Royal College of Surgeons of England, and I are therefore anxious to know the whereabouts of Dr. Collyer's specimen so that it may be examined afresh in the light of our present knowledge. But, unfortunately, we cannot come on traces of it. It appears that Dr. Collyer was registered, June 23, 1868, with the General Medical Council in London, the qualification being M.D., Medical College, Pittsfield, Mass., 1839; and in 1898 his name lapsed from the Medical Register. We understand that the American Medical Directory states that the college from which, apparently, he obtained his degree is described as the Berkshire Medical College, Pittsfield, Mass., and that this institution is classed with those which are extinct or merged with other colleges. These details have been given me by the registrar of the General Medical Council in London, who has suggested that I should write to you in the hope that you may be able to give me some information in regard to medical practitioners who obtained this qualification at the time when Dr. Collyer obtained his. If you could let me know where and when Dr. Collyer died (it seems clear that after leaving England he returned to America) and if any of his relations are still living, I would be most grateful.

This is a matter of scientific importance and one in which, as the first discoverer here of the flint implements of Pliocene man, I am deeply interested, and this is my excuse for troubling you in this manner. I may say that I have put advertisements in the London *Times*, *Nature* and *Royal Microscopical Journal*, regarding the Foxhall jawbone, and the London *Illustrated News* is this week publishing an illustrated account of the discovery.

J. REID MOIR, One House, Ispwich, England.

[COMMENT.—See editorial with the same title, this week, page 1159.—ED.]

CONTRIBUTIONS FOR BELGIAN AND FRENCH PHYSICIANS

To the Editor:—With this I beg to acknowledge the subjoined subscriptions in cash and also gifts of instruments. The cash was forwarded early last January, half to Dr. Antoine Depage for the Belgians, and half to the treasurer of the Comité d'Appui des Réfugiés de Professions Libérales for the French physicians.

The instruments donated in this list consisted of 180 entries, and the value is $368.85. Some of them were in sets, for example, a set of ear instruments, laryngeal instruments, postmortem instruments, and instruments for amputations. The number, therefore, is well above 200. These have been recently sent by Messrs. George P. Pilling & Son of Philadelphia, to whom my sincere thanks are due for the great care and trouble that they took in repairing, sharpening, packing, and finally forwarding the instruments to the agent of the Belgian Relief in New York. The value in money of their services they have declined to state, but it is, as in the case of the other instrument makers, whose equal generosity I have heretofore acknowledged, a very substantial contribution.

As this practically closes my very willing and delightful service in this matter I beg to say that all told I have received in cash $2,764.88. Of this, $100 was specifically for the Belgian physicians. The remaining sum was divided

equally between the Belgian and French physicians. The total value of the instruments was $4,728.85, making a grand total of money and instruments of $7,493.73.

I have not yet received from Dr. Depage the number of the Belgian physicians who have been relieved, but I have from the French committee a complete list of names of physicians and hospitals that have been assisted, with the exception of the last $70. This list numbers seventy-seven, to which are to be added those that have been assisted by the last dispatch of money and of instruments, and is to be more than doubled by the number of Belgian physicians who have been assisted by us.

In the name of our suffering confrères of France and Belgium, I beg leave to thank the profession, and in addition a few friends outside of the profession who have generously aided us. Imagine yourself in the places of those poor desolated homes and you can then possibly realize, at least in part, the thankfulness they entertain for this help.

W. W. KEEN, M.D., Philadelphia.

SUBSCRIPTIONS IN CASH

Dr. R. M. Ellyson, Washington, D. C.	$ 5.00
Dr. J. T. Bottomley, Boston	10.00
Dr. J. H. Bristow, Portland, Ore.	10.00
Dr. Floyd W. McRae, Atlanta, Ga.	25.00
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Dr. M. Manges, New York	50.00
Mr. Louis A. Bauer, Washington, D. C.	10.00
Dr. W. W. Keen, Philadelphia (third contribution)	25.00
	$140.00

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Dr. Frank Taliaferro, Carlisle, Ohio; Dr. M. Manges, New York; Dr. James C. Bloomfield, Athens, Ga.; "Anonymous Donor," Chicago; Dr. John R. Williams, Rochester, N. Y.; Fred. Haslam & Co., instrument makers, Brooklyn.

MEDICAL MEN SHOULD BE SENT HOME PROMPTLY

To the Editor:—Medical units, after closing up the hospitals, are held up over in France for weeks and months, which is an outrage. Medical men certainly have made the greatest sacrifice, I think. Men with good incomes (from five to ten thousand dollars) have taken positions in the Army for eighteen or twenty-four hundred dollars to help a good cause along, and now they are treated shabbily. When the units are closed, they are sent to the seashore awaiting transportation, while thousands and hundreds of thousands of privates are sent over, but the professional man simply waits for transportation. Why should not doctors (in fact all professional men, who have a great deal to lose "by being kept idle") be sent over promptly? It is certainly the rankest mismanagement to keep men over there for six to eight weeks who have nothing to do, while if they were home, where they are generally needed, they could do good and valuable work. The War Department certainly should be stirred up. The medical men, I am sure, are willing to go on any kind of a ship, and travel third or fourth class, as long as they can get home.

J. H. CARSTENS, M.D., Detroit.

PROTEST INCREASE IN TAX UNDER NARCOTIC LAW

To the Editor:—I am writing to ask if our Association cannot make a concerted objection to the extra tax which the government has put on us, especially to its failing to credit the $0.50 paid under the old law on the amount demanded by the new law. For example, I paid $1 for the year ending June 31 next, $0.50 of which, of course, applied to the half year we are now in. At the revenue office I was told that the ruling was that no credit could be given for this, and consequently I paid the $1.50, the amount the new law requires for six months. I feel that this is an imposition, and as such, remonstrance should be made in such a way as to be felt.

HENRY E. HALE, M.D., New York.

Mind and the New-Born.—The mind of the new-born infant is less in evidence than that of the new-born chick.—Lay.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

NIKOLSKY'S SIGN—EPIDERMOLYSIS BULLOSA—PEMPHIGUS FOLIACEUS

To the Editor:—Please explain what is meant by Nikolsky's sign in dermatology. If I understand it, the phenomenon consists of a very loose connection between the epidermis and corium, allowing the epidermis to be very easily abraded. Please state the skin disorders with which it has been found to be connected, and indicate where and when it was first referred to. I have a case of an adult who for the past two years has had a condition similar to the symptoms of epidermolysis bullosa, excepting that no bullae develop at the site of injury. However, the epidermis is so readily abraded that he has a large number of denuded areas with weeping. Within a short time these become covered with a thin crust before healing. Should you be able to locate similar conditions in medical literature, I should be glad to have the references.

R. A. C. WOLLENBERG, M.D., Detroit.

ANSWER.—Nikolsky's sign has been described as "a condition in which the outer layer of the skin is easily rubbed off by slight injury." Sutton speaks of Nikolsky's sign in connection with his description of pemphigus foliaceus. Stelwagon, under the same head, refers to Nikolsky's "Contribution to the Study of Pemphigus Foliaceus of Cazenave" (Thèse doctorat [Kief], 1896) in which Nikolsky refers to seventeen cases of the disease reported by various authors whom he names. Stelwagon gives an extensive bibliography. According to Pusey, Cazenave first described pemphigus foliaceus in 1844.

Our inquirer does not give sufficient information on which to base a diagnosis. Failure to develop bullae at the site of traumas would seem to rule out epidermolysis bullosa; and the other characteristics of the case as far as given, with the easy abrasion of the epidermis as described by Nikolsky, might point to pemphigus foliaceus.

The following references will be found of interest:

Sutton, R. L.: Diseases of the Skin, Ed. 2, St. Louis, C. V. Mosby Company, 1917, p. 274.

Stelwagon: Diseases of the Skin, Ed. 6, Philadelphia, W. B. Saunders Company, 1910, p. 363. Extensive bibliography.

Pusey, W. A.: Principles and Practice of Dermatology, Ed. 2, New York, D. Appleton & Co., 1911.

Low, R. Cranston: *Brit. J. Dermat.*, 1909, pp. 101 and 135. Reports two cases of pemphigus foliaceus, both in women, and a third case complicated with dermatitis herpetiformis. He gives a full review of the literature.

Nikolski: Thesis on Pemphigus Foliaceus, Kief, 1896.

Biddle: *J. Cutan. Dis.* 1897, p. 203.

Klotz: *Am. J. M. Sc.* **102:** 20 (Dec.) 1891.

White, C. J.: *Boston M. & S. J.* **164:** 643 (May 4) 1911.

Hazen: *J. Cutan. Dis.* 1910, p. 118; ibid. 1912, p. 325.

Goldenberg, H., and Highman, W. J.: A Clinical Study of Pemphigus, *J. Cutan. Dis.* **36:** 577 (Dec.) 1918.

Wirz, A.: Exfoliating Dermatitis in Relation to Pemphigus, *Cor.-Bl. f. schweiz. Aerzte* **46:** 1685 (Dec. 9) 1916.

Ravogli, A.: Epidermolysis Bullosa, J. A. M. A. **69:** 256 (July 28) 1917.

Weiss, R. S.: Epidermolysis Bullosa: A Case showing Loss of Elastic Tissue in Apparently Normal Skin, *J. Cutan. Dis.* **35:** 26 (Jan.) 1917.

PETROLEUM POISONING

To the Editor:—I have a patient, a man, who drives an oil wagon and handles several hundred gallons of gasoline, distillate and kerosene daily. He has recently developed peculiar symptoms consisting of vertigo, throbbing of the temples, lassitude and loss of appetite. After examining him thoroughly I can find nothing which would cause these symptoms. Can you give me any information on the possibility of poisoning through inhalation of gasoline fumes?

IVAN W. KEITH, M.D., Beaumont, Calif.

ANSWER.—This question was discussed in Queries and Minor Notes, Nov. 15, 1913, and July 28, 1917. In brief, the general symptoms of petroleum poisoning are headache, dizziness, accelerated heart action, labored respiration, collapse, stupor, unconsciousness and, more rarely, convulsions. Sometimes there is a rise of temperature. In case of actual collapse it is necessary to use the usual restorative measures in the form of warm baths, cold effusions and the usual respiratory and cardiac stimulants. It would seem desirable that in the case of a man particularly susceptible to symptoms on inhalation of the fumes of petroleum products, he find an occupation which would not subject him to this hazard.

The subject has been more fully discussed in an article by J. G. Johnson on the "Toxic Effects of Gasoline Fumes," *Canadian Medical Association Journal*, February, 1913.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 13. Sec. Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith; Sec. Regular Bd., Dr. T. J. Stout, Brinkley.

GEORGIA: Atlanta and Augusta, June 5-6. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, May 12. Sec., Dr. J. R. Judd, Beretania St., Honolulu.

NATIONAL BOARD OF MEDICAL EXAMINERS: Philadelphia, June 2-7. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEVADA: Carson City, May 5. Sec., Dr. S. L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 20-23. Mr. George M. Wiley, director, Exam. and Inspections Div., State Edu. Bldg., Albany.

North Dakota January Examination

Dr. G. M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, practical and written examination held at Grand Forks, Jan. 7-10, 1919. The examination covered 13 subjects and included 106 questions. An average of 75 per cent. was required to pass. Of the 3 candidates examined, 2 passed and 1 failed. Two candidates were licensed through reciprocity, and 1 candidate, a graduate of the University of Pennsylvania in 1873, received a special license on account of forty-five years of successful practice. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Detroit College of Medicine and Surgery		(1916)	81
Barnes Medical College		(1911)	79
	FAILED		
College of Physicians and Surgeons, Baltimore		(1882)	54.5

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago Homeopathic Medical College		(1889)	Minnesota
University of Minnesota		(1912)	Minnesota

Ohio December Examination

Dr. H. M. Platter, secretary of the Ohio State Medical Board, reports the oral, practical and written examination held at Columbus, Dec. 3-5, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 15 passed and 5 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1918)	90.3
Rush Medical College		(1918)*	84.2
Johns Hopkins University		(1918)	87.5
Harvard University		(1918)	89.9
Columbia College in the City of N. Y.		(1894)	77.1
Cleveland College of Physicians and Surgeons		(1910)	84.5
Ohio State University College of Medicine		(1918)	85.1
Western Reserve University		(1918)	83.1
Jefferson Medical College		(1918)	77.4, 82.2
University of Pennsylvania		(1918)	88.5
University of Pittsburgh (1917) 89.6; (1918) 83, 85.5, 87.8.			
	FAILED		
Atlanta Medical College		(1890)	46.8
Homeopathic Hospital College		(1892)	†
Meharry Medical College		(1918)	†, †, 69.7

*Received certificate for four years' work. Degree will be granted on completion of hospital internship.

†No grade given.

Irregulars and Their Methods.—Irregular practitioners do not prosper because their therapeutic methods are successful, but because of the advantage they take of sick people. Why not put an end to the taking of this advantage? It is now unethical to guarantee a cure; why not make it unlawful as well by the enactment of special legislation? The taking of money in advance of treatment should constitute *prima facie* evidence of fraudulent intent. If it were accepted after unsuccessful treatment, the failure to cure should then constitute proof of fraud, assuming the previous guarantee. Restitution of the fee should be included in the penalty.—*Weekly Bulletin*, Department of Health, New York City.

Book Notices

QUARTERLY MEDICAL CLINICS. A Series of Consecutive Clinical Demonstrations and Lectures. By Frank Smithies, M.D., F.A.C.P., Associate Professor of Medicine, School of Medicine, University of Illinois. Volume 1, Number 1. Paper. Price, $1.50. Pp. 188, with 42 illustrations. St. Louis: Medicine and Surgery Publishing Company, Inc., 1918.

The success of the Murphy Clinics popularized this form of medical literature. This venture was followed by the Medical Clinics of Chicago, subsequently the Medical Clinics of North America, the Surgical Clinics of Chicago, and others. A recent recruit is Smithies' Quarterly Medical Clinics. The preface modestly points out that students and visiting physicians had suggested to Dr. Smithies that his clinics be presented in permanent form. The distinctive feature of these clinics, differing from those mentioned, is the addition to each case report of detailed notes on clinical and laboratory procedures describing the elementary laboratory and clinical methods used by the author or his laboratory assistants in reaching a diagnosis. The descriptive titles on the cases seem unnecessarily verbose; for example,

"MR. C. D., AN ADULT BLACKSMITH, WITH A PREVIOUS HISTORY OF ENTEROCOLONIC AMEBIASIS, WALKED INTO THE HOSPITAL COMPLAINING OF SEVERE FRONTAL HEADACHE, MENTAL CLOUDINESS, AND FEELING AS THOUGH HE HAD FEVER." This is the title. The case, it develops, was one of diffuse, acute cerebrospinal meningitis, the treatment of which consisted of good nursing, "preliminary purge with 2 ounces oleum ricini; urotropin, 10 gr., every two hours in an attempt to combat cerebrospinal infection." Incidentally, cultures from the spinal fluid on two examinations had been negative. The routine form for each case is the presentation of history, environment, preliminary physical examination, special examinations, positive findings, differential diagnosis, usually a general discussion of the subject, including the pathology of the disease, and finally treatment. In general, the therapeutic methods used are rational and simple. In places the language of the author is somewhat unusual; for example, "The 'hard boiled egg' type of drunkard rarely reacts to the psychology of 'drink-cure' institutions; he comes to look upon 'taking the cure' as part of the price he must pay for the joys of his jag"; and elsewhere, "In effecting a cure himself he has about as great a chance as he would to buck a First Ward 'crap' game." This presumably adds local color.

THE UNSOUND MIND AND THE LAW: A PRESENTATION OF FORENSIC PSYCHIATRY. By George W. Jacoby, M.D., Consulting Neurologist to the Hospital for Nervous Diseases. Cloth. Price, $3 net. Pp. 424. New York: Funk & Wagnalls Company, 1918.

The author in his introduction states the irreconcilable differences that have arisen in the application of legal dicta of responsibility in mental disease. He makes no effort to reconcile them. To attempt to do so at this time would be not only useless but also untimely. He contents himself with urging the physician, on the one hand, to obtain some juristic knowledge and, on the other, those who are charged with the administration of the criminal law to equip themselves in psychiatry to such an extent that they may be able to understand the principles underlying opinions given by physicians.

The discussion of the general relations of jurisprudence and psychiatry opens with a historical retrospect showing the genesis of the varying views in relation to responsibility in mental disease as they have been formulated from the earliest times. The author points out that psychiatry has had to travel a difficult road, and that long after inductive methods of observation had taken root in general medicine, psychiatry was still looked on as an intellectual science. He leaves us in no doubt as to his position when he says that the term "mental" disease is misleading, conveying as it does a notion of disease of the mind as opposed to a disease of the body. It would be profitable if the writer's words were hung as a motto in every hospital where sick people are treated: "Mental disease is bodily disease, and differs from other forms of such affliction merely by reason of the fact that it has its seat in the brain. Not every brain disease is mental disease. But every mental disease is brain dis-

ease even when no anatomical lesion of the brain is discoverable." The earliest writers, notably Hippocrates, had this conception of mental disorder, but it was buried under the mass of superstition which developed in the middle ages.

One of the most satisfactory chapters is that devoted to the examination of the insane. The second half of the book deals with psychiatric expertism and consists of a discussion of various forms of mental disease together with a description of their symptoms and differential diagnosis and a discussion of their forensic aspects. This part will be found to be of special value for the legal profession, as it succinctly and accurately tells what is meant by a diagnosis in mental disease and how it is arrived at, and the general principles on which responsibility should be assessed in each group of disorders.

Jacoby leans strongly toward the idea of modified responsibility in mental disease. It is difficult to understand how a psychiatrist could reach any other conclusion, but unfortunately the application of such doctrine at this time is purely academic. There is in the majority of jurisdictions in this country no provision for carrying it out. The statute prescribes certain penalties for certain cases, and if the defense of insanity is successfully made there is no place for the patient to go excepting to an asylum. If, on the contrary, it is not maintained, the penitentiary and the gallows are the only alternatives. In those states which still maintain capital punishment, a sort of modified responsibility is obtained by the substitution of life imprisonment in capital cases when there is a doubt of mental capacity. Whether the substitution of life imprisonment for the death sentence is in effect a modification of responsibility is perhaps open to argument.

The author has produced an excellent book—one that was needed at this time, and one that will do much toward putting modern psychiatry in the possession of those who have charge of the administration of the criminal law but who are not possessed of any technical knowledge of the subject.

GENITOURINARY DISEASES AND SYPHILIS. By Henry H. Morton, M.D., F.A.C.S., Clinical Professor of Genitourinary Diseases in the Long Island College Hospital. Fourth edition. Cloth. Price, $7. Pp. 807, with 330 illustrations. St. Louis: C. V. Mosby Co., 1918.

If one favors the idea of embodying urology and syphilology in one treatise, then Morton's book must be regarded as a most satisfactory one. All the chapters are written with equal care, and the presentation of the matters discussed is concise and yet perspicuous. A feature worthy of mention is the endeavor of the author to give proper credit to other medical writers for their contributions to the advance of the specialty. In forty chapters devoted to urology, the author covers practically everything that is worth knowing in this line of work. The modern methods of examination and diagnosis are fully described, and are illuminated by numerous illustrations, among which the colored plates are deserving of praise. The generally accepted tests of elimination are described, and valuable hints are given concerning their application and the interpretation of the results. The discussion of gonorrhea is complete; it will be a welcome guide for the practitioner. The sober attitude taken by the author toward operations for malignant growths of the bladder will be appreciated by every surgeon who does not permit his ambitions to run riot with his judgment. Radiotherapy of the bladder and the clinical features of vesical diverticula would seem to deserve more than the somewhat scanty discussion given these topics. Twelve chapters are devoted to the clinical aspects of chancroid and syphilis. Special stress is laid on the diagnosis, and the outline given in the form of tables is particularly instructive. The most important types of clinical manifestations are presented by the aid of many illustrations, among which the colored plates again deserve special recognition. The modern laboratory tests are not only described in reference to their technic, but are also explained from a biologic and biochemical standpoint. The therapy is presented clearly. Of great value is the discussion of the various methods with reference to the state of the disease and the general condition of the patient. The dangers and untoward effects of the modern energetic treatment are pointed out with great precision, and valuable hints as to their prevention are furnished.

Social Medicine, Medical Economics and Miscellany

Health of Workers and the Eight Hour Day in Wool Manufacturing

The National Industrial Conference Board Research Report No. 12, just issued, discusses the hours of work as related to the output and to the health of workers in wool manufacturing. Statistically the report is based on replies from 111 establishments employing 71,595 workers, supplemented by reports of field agents. All together, the report covered 126 establishments employing 47 per cent. of the total number of wool mill workers in the United States. With the question of output we are not particularly interested, although it is worth noting in passing that the board concludes that the adoption of a fifty-four hour schedule in the wool manufacturing industry has in a large number of cases resulted in a reduced output. Regarding the effect on the health of the workers, the investigators found that on account of lack of satisfactory records and careful observation of health conditions, conclusive judgment was impossible and only approximate deductions could be made. Of the fifty-seven establishments reporting definitely on health conditions, fifty stated that the shortening of the hours of work had no significant effect; three reported good effects, and four reported decided improvement. Each of the seven reporting good results had had a previous schedule of fifty-eight hours; those in which the weekly reduction amounted to only two hours reported no apparent change in health conditions. There appears to be no strictly occupational disease in the wool manufacturing industry. Suction shuttles are not allowed in wool factories as they are in cotton mills. Animal dusts are considered less harmful than the vegetable dusts evolved in cotton and flax manufacture. The dirt given off in wool sorting, rag sorting and grinding is irritating to the respiratory tract, and in extreme cases causes "shoddy fever" with symptoms similar to influenza. The greater part of this dust has been eliminated in the more modern mills. The carbonizing process is more or less hazardous on account of the dust and fumes. Anthrax, in its pulmonary form known as "wool sorter's disease," is apparently extremely rare in the wool industry in this country. Of 132 deaths from anthrax recorded in the twenty-four registration states from 1910 to 1915, only one of the victims had been engaged in woolen manufacturing. The president of a large woolen mill states that in fifty years' experience he has never had a case in his mill and has known of but one case. Most of the anthrax in this country is found among those working in hides and dry hair rather than wool. In striking contrast to the condition in this country, the Seventeenth Abstract of Labor Conditions of Great Britain reports that of 150 cases of anthrax in Great Britain, from 1900 to 1913, sixty-six were in the wool manufacturing industry. The comparative freedom of American wool sorters from this disease is largely due to the relatively small amount of wool imported from regions where anthrax is prevalent. The heat, humidity and poor ventilation found in the weaving sheds results in coughs, colds, rheumatism and pulmonary diseases, while the chemicals used in scouring and dyeing are also responsible for some industrial disease. As is to be expected, tuberculosis among wool workers has a higher rate than the average, the percentage of the total number of deaths for the three decades from 25 to 55 being 41.7, 35.3 and 16.7 for wool mill operatives as against 30.8, 25 and 15.6 for all manufacturing and mechanical groups. In pneumonia also the rate among wool mill operatives is markedly higher, being 12.5 and 13.2 for the decades from 25 to 45, as contrasted with 7 and 9.5 for the same decades in all manufacturing and mechanical pursuits. Strangely enough, however, in the decade from 45 to 55 the percentage of deaths from pneumonia to all deaths in the wool mill operatives class is only 6.1, while in all manufacturing and mechanical pursuits it is 9. On the other hand, the percentage of deaths from heart disease and nephritis is less among wool workers from 25 to 45, but higher from

45 to 55 than it is among all manufacturing and mechanical pursuits. Regarding accidents, while there are few conspicuously dangerous machines, there is a relatively large number of accidents among workers in the wool industry, the insurance rate being 83 cents per $100 for wool spinners as against 92 cents for cotton spinners and weavers and 30 cents for silk manufacturing. This, in the opinion of the board, is due to complex and crowded arrangement of the machinery, to unguarded machinery, to slippery floors and to carelessness on the part of workers themselves. The final conclusions are that the adoption of a fifty-four hour schedule has had an unimportant effect on the health of workers; that the occupation is comparatively free from strictly occupational diseases; that it has a distinctly high death rate from tuberculosis and pneumonia caused in part by the high temperature and humidity characteristic of certain processes in the industry, and that the high death rate from tuberculosis among wool mill workers would indicate that conditions within the industry are a contributing factor.

Ireland and a Ministry of Health

T. Hennessy, F.R.C.S.I., D.P.H., Irish secretary of the British Medical Association, discussing the subject of Ireland and a ministry of health in the *Dublin Medical Journal*, Feb. 1, 1919, says that in an experience of almost twenty years in the County Tipperary Dispensary as a physician in the Poor Law Medical Service he found that between 50 and 70 per cent. of the Irish population receive free medical treatment as "poor persons." This abuse of dispensary privileges, he says, is not so much the fault of the Irish people as of legislators, who are too indifferent to make themselves acquainted with the medical needs of the country, or to take the advice of those who can best give it. He believes that Ireland is more in need of legislation providing for a ministry of health than any other country of western Europe. The main principles governing the establishment of such a ministry should be as follows: It should take over the complete control of all the health services belonging at present to the different government departments; its administrative functions should be carried out by a central body called the board of health, presided over by a minister of cabinet rank; to this board should be transferred, in Ireland, (*a*) the duties of the Local Government Board with regard to health; (*b*) the duties of the Home Office with regard to the inspection of workshops and factories, and those of the board of trade, for example, medical inspection of ships; (*c*) the Irish Insurance Commission; (*d*) administration of lunacy laws; (*e*) health functions of the Privy Council with regard to midwives, etc.; (*f*) Education Extension Act, 1915, and medical inspection of schoolchildren; on the board of health there should be members of the medical profession representing, in equal numbers, the clinical and preventive sides of medicine, and there should be a consultative council for giving advice and assistance in all health matters.

For local organization, the country should be divided into suitable administrative areas which would require the services of whole-time administrative medical officers, both clinical and preventive. In each county and borough there should be county and borough health committees, composed of dentists, pharmacists and certain lay persons. There should also be district health committees, the functions of which, as well as the duties of the medical officers and the dispensary physician assistants, are outlined by Hennessy. For each area the county health committee should established hospitals, including, when necessary, sanatoriums, clinics (including natal and prenatal maternity, and child welfare), nursing schemes, and medical and dental inspection of schoolchildren. There should also be provided pathologic laboratories and facilities for consultation and specialist services.

Though the reports of the Local Government Board for the three years preceding 1918 show that an average of 610,322 new cases were attended and registered as poor persons by the dispensary physicians, about one third of whom were attended at the patients' homes, Hennessy says that this does not represent half of those attended, on account of records not having been made of the cases. The amount of work thrown on the dispensary physicians is very large, and for it they are very poorly paid. The average population for whose "public health" the dispensary physician is responsible is between 4,000 and 5,000, and his salary is about £15 ($75) a year. For the actual work and liabilities for the treatment of about two and a half million people in Ireland in 1917, the dispensary physicians received £109,604, or an average of approximately £130 a year.

Remarkable Case of Personation of a Dead Physician

A curious case of personation of a dead physician for many years came to light recently in a British court. In the fashionable town of Chislehurst, Kent, a man practiced under the name of James Allan and enjoyed an excellent position. He was surgeon to a number of charitable institutions and to the local cottage hospital. He moved in the best medical circles, for he was also a fellow of the Royal Society of Medicine, a member of the West London Medical Society, and the author of several medical papers, some of which had appeared in the transactions of the West London Medico-Chirurgical Society. Among these were "Twelve Cases of Tracheotomy in Young Children with Nine Recoveries," 1899, and "Treatment of Malignant Disease by Electric Currents of High Potential and Frequency," 1902. In the Medical Directory (which it must be remembered is not an official book but is issued by a firm of publishers), his name appeared from 1901 onward as James Allan, M.B., C.M., of Edinburgh, the exact name and qualifications of a physician who practiced in Bradford and died in 1898. The deception was discovered in this way: The defendant was largely instrumental in forming a branch of the V. A. D. (Voluntary Aid Detachment, an institution formed for training women in duties of nursing so as to be able to help in case of emergency). When the war broke out, the V. A. D. was able to provide an almost unlimited amount of nursing and other help for the hospitals that were formed all over the country. The defendant was appointed medical officer of the V. A. D. hospital at Chislehurst, and also assistant county director for the V. A. D. in Kent. For this work he was decorated by the government, received the distinction of O.B.E. (Order of the British Empire). But this was his undoing. When the usual annual form was sent out by the Medical Directory to all physicians on its list, he returned his name with the distinction O.B.E. added to it, and this also appeared in the newspapers and was seen by the registrar of the General Medical Council whose duty it is to supervise the Medical Register (the official list of all physicians). On looking at this he found that there was no such practitioner registered. The history of the defendant was as follows: He was the son of a farmer at Lurgan, Ireland. At 18 he went to Glasgow, where he was a shop assistant and studied medicine. He remained in Glasgow until about 1893 and then became an assistant to physicians in London until about 1901. Then he went to Chislehurst, where he has practiced ever since. About the time he began to practice at Chislehurst the sister of the late Dr. James Allan received a request from a person in Glasgow asking if she would dispose of her brother's diplomas and saying that he had a hobby for collecting diplomas. The sister did not part with the diplomas. The writer of the letter turned out to be a physician practicing in Glasgow who knew the defendant well. When the case came into court, Lord Chilston, director of the Kent V. A. D., was called to give evidence of the character of the defendant. He spoke highly of the work of the defendant in connection with the Red Cross Hospital at Chislehurst, of which the defendant had had charge. Of the 2,161 patients who had passed through it, only one had died, and that was a patient with pneumonia. Canon Dawson, rector of Chislehurst, said that the defendant had attended his household for sixteen years successfully and skilfully. The defendant was ordered to pay the maximum penalty of $100, and $50 costs. Many cases of imposture in connection with the medical profession have occurred, but it is doubtful if ever an impostor enjoyed such a respectable position in the eyes not only of the public but also of the profession.

Medicolegal

Using and Submitting Reports of Assistants

(Mesmer & Rice et al. v. Industrial Accident Commission et al. (Calif.), 173 Pac. R. 1099)

The Supreme Court of California, in affirming an award of the Industrial Accident Commission in favor of one Wilson for injuries alleged to have been suffered by him in the course of his employment by Mesmer & Rice, says that the employers contended that the disability for which compensation was sought was due to a certain disease with which it was said Wilson was afflicted, rather than to the injury received by him. After the taking of the evidence before the referee, it was agreed, or understod, that Wilson was to submit himself to an examination by the physician of the commission, who was to take whatever measures he might deem necessary to reach a conclusion, and that his report was to be made to the referee, to be used by the commission in arriving at a conclusion. The report of the physician was presented, accompanied by the reports of two other physicians whom he had in consultation with him in the case, one of which latter reports was a report of certain symptoms as shown by an examination, and the other was simply a report of the result of a Wassermann test, the answer being "negative." The employers complained of the physician of the commission submitting to it with his own report, and as a part thereof, the reports to him, which were thus made evidence in the proceeding. But it could not fairly be disputed that, in view of the understanding that the physician of the commission was to take whatever measures he deemed necessary to reach a conclusion, he had the right to employ assistance to make certain observations as to Wilson, including a serologic examination, and to report the result for his information in observing Wilson, and in coming to a conclusion. This he did, and on their reports to him and his own personal observation of the case, continued for many days, he made his own report to the commission. There can be no doubt that his report was, in view of the understanding of the parties, competent evidence to be considered by the commission. The court may assume for the purposes of this decision that the written reports of the two assistants, which the physician submitted with his report, were not competent independent evidence, for the consideration of the commission, and that the application of the employers before the award was made, that such other reports should be stricken out and withdrawn from the record, should have been granted. But the failure of the commission to reject the incompetent evidence could not affect its jurisdiction to make the award, and independent of the evidence alleged to be incompetent there was ample evidence to support all the findings. At most, there was refusal on the part of the commission to strike out incompetent evidence which was merely cumulative of other evidence, and in no way essential to support the conclusion of the commission. It may further be noted that, in view of the report of the physician of the commission, the other reports were of no substantial importance. Wherefore the award is affirmed.

When Fees Paid in Advance May Be Recovered

(Bucklin v. Morton (N. Y.), 172 N. Y. Supp. 344)

The Supreme Court of New York, appellate term, first department, reverses a judgment that dismissed the complaint in this action to recover money paid in advance by the plaintiff to the defendant for medical services to be rendered by the defendant as a physician at his office and which the plaintiff could not receive on account of his having become very ill and being unable to leave his house to go to the defendant's office. The court says that the rule governing cases of this character has been well stated as follows:

"The principle underlying these cases is that the contract was entered into by the contracting parties on the implied condition of the continued ability of the party who is to render the services to perform, and that, when unable to perform, because of sickness or physical or mental incapacity proceeding from no wilful or deliberate conduct of the party, such inability is in consequence of an act of God, and excuses performance. . . . The obligation of the party who is to receive the services to pay is conditional on the obligation of the party who is to render the services to perform, and vice versa. If the contract of employment is to continue operative and binding, those interdependent obligations must continue to exist; and, if one party is excused from the performance of his obligations, the obligations of the other party must likewise come to an end."

The rule would seem to be equally applicable to both parties to a contract, in which the services to be rendered and received were dependent on the physical ability of the plaintiff to attend for treatment and of the defendant to give the treatment. In the event of illness of the defendant and his physical inability to perform, he would not have been liable for damages for breach of contract, but would have been obligated to return to the plaintiff the money paid in consideration of services subsequently to be rendered and not actually rendered. If, by reason of the defendant's inability to perform through no fault of his, the contract ceased to be binding on the defendant, it became inoperative in like manner to the same extent in the event of similar disability on the part of the plaintiff.

There was no evidence to support the contention of the defendant that the money paid by the plaintiff was paid as a retainer. It was paid in contemplation of services to be rendered, the rendition of which, by reason of the continuing serious illness of the plaintiff, became impossible. On the expiration of the period during which the monthly treatment was to have been rendered, the plaintiff became entitled to the return of the money; there being no proof of any expense having been incurred by the defendant in preparation therefor prior to the plaintiff's permanent disability. The judgment rendered in favor of the defendant must be reversed, and judgment directed in favor of the plaintiff for the full amount, with interest and costs in this court and in the court below.

What Medical and Surgical Aid or Service Includes

(Olmstead v. Lamphier et al. (Conn.), 104 Atl. R. 488)

The Supreme Court of Errors of Connecticut, in holding that the workmen's compensation act of that state imposed a legal duty on the defendant to purchase for the plaintiff an artificial leg as a part of the surgical aid or service provided for in said act, says the court was left with the bald question whether surgical aid or service includes the furnishing of an artificial leg. There is no specific provision for the furnishing of medicines or any material or apparatus required by the physician. Yet it is clear that all these are included in the term "medical aid or service." It must also be clear that all necessary bandages, materials, splints, and apparatus required by the surgeon in effecting a cure are included under the term "surgical aid or service." The fact is that Section 7, as amended by Chapter 368 of the Public Acts of 1917, is general in its terms and purposely so. In the New York act there is a specification of various things to be furnished. In Connecticut a different course was adopted, general terms being used in the act with the intention, the court thinks, to include all things which might reasonably fall within its provisions. The employer is required to furnish the employee a physician, and, in addition, "such medical and surgical aid or hospital service as such physician shall deem reasonable or necessary." This language is broad and general.

"Medical aid" is relief pertaining to the science of medicine. And "surgical aid" is relief pertaining to surgery or used in surgery. The term in its ordinary significance is not limited to the personal service of the surgeon, but includes all the means and instrumentalities used in surgery which will help effect a cure. Splints and crutches and apparatus for holding the limb manifestly are brought to the patient by the surgeon, adjusted by him, and usually paid for directly by the patient. It is part of the duty of the surgeon to prepare the stump of arm or leg for the artificial arm or leg. It is a part of his duty to adjust it. Why give the patient

splints to hold the bones in place or crutches with which to walk, and regard these as used in surgery? Why supply a glass eye? Because it is the everyday duty of the surgeon to order these things for his patient, and they are included as of course under "surgical aid." There is no difference between supplying these and the artificial limb. That pertains to surgery and is used in surgery. The stump must be prepared by the surgeon to receive the artificial limb, and that must be adjusted to the stump by the surgeon. The only difference between the crutch and the artificial limb is the latter costs more than the former.

The Connecticut act contemplates the furnishing of all the medical and surgical aid that is reasonable and necessary. The purpose of this provision is to restore the injured employee to a place in the industrial life as soon as possible by the use of all medical and surgical aid and hospital service which ordinary usages of the modern science of medicine and surgery furnish. Humanity and economic necessity in this instance are in harmony in working for the accomplishment of the individual and of the public welfare.

"Surgical aid" is a term of technical significance and has an established meaning in standard works on surgery. The duty of the surgeon does not end with the healing of the stump. His duty continues until the artificial limb is adjusted and the patient has learned how, with the help of the surgeon, to use it properly. It would not be questioned that the entire bill of the surgeon for his services would fall under the head "Surgical Aid." It would be difficult to justify this expenditure, as well as that for bandages or ointments or other material used by the surgeon in his treatment of the patient, and not make a like expenditure for the artificial leg in connection with which these things were used.

Basis for Opinion

(Ft. Smith & Western Ry. Co. v. Hutchinson (Okla.), 175 Pac. R. 922)

The Supreme Court of Oklahoma holds, in this personal injury case, that a physician in giving evidence as an expert may base his opinion on his observation and examination of the patient, together with a history of the case as given to him, and such opinion will not be rendered inadmissible in evidence because based partly on statements made to him by the patient with reference to her condition, symptoms, sensations, and feelings when they were made to, and received by him, and were necessary to an examination and proper diagnosis and treatment of the patient's injuries.

Society Proceedings

COMING MEETINGS

American Medical Association, Atlantic City, June 9-13.

American Academy of Medicine, Atlantic City, June 9-10.
American Association of Anesthetists, Atlantic City, June 9-10.
American Physiological Society, Baltimore, April 24-26.
American Proctologic Society, Atlantic City, June 7-9.
American Therapeutic Society, Atlantic City, June 6-7.
Arizona Medical Association, Globe, June 2-3.
Arkansas Medical Society, Little Rock, May 20-22.
Assn. of American Peroral Endoscopists, Brooklyn, June 5.
Connecticut State Medical Society, Bridgeport, May 21-22.
Florida Medical Association, Miami, May 20-22.
Illinois State Medical Society, Peoria, May 20-22.
Iowa State Medical Society, Des Moines, May 7-9.
Kansas Medical Society, Ottawa, May 7-8.
Maryland, Medical and Chir. Faculty of, Baltimore, April 22-24.
Massachusetts Medical Society, Boston, June 3-4.
Michigan State Medical Society, Detroit, May 21-22.
Mississippi State Medical Association, Hattiesburg, May 13-14.
Missouri State Medical Association, Excelsior Spgs., May 26-28.
Nebraska State Medical Association, Lincoln, May 19-21.
New Hampshire Medical Society, Concord, May 14-15.
New York State Medical Society, Syracuse, May 6.
Ohio State Medical Association, Columbus, May 6-8.
Oklahoma State Medical Society, Muskogee, May 20-22.
Rhode Island Medical Society, Providence, June 5.
Texas State Medical Association, Waco, May 13-15.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

March 15, 1919, **25**, No. 2

Developmental Relations of Brachydactyly in Domestic Fowl. C. H. Danforth, Seattle, Wash.—p. 97.
Ovary of Spermophile (Spermophilus Citellus Tridecemlineatus) with Special Reference to Corpus Luteum. D. Drips, Rochester, Minn. —p. 117.
Correlation of Pelvic Structure and Habits of Certain Burrowing Mammals. R. N. Chapman, Ithaca, N. Y.—p. 185.

American Journal of Diseases of Children, Chicago

April, 1919, **17**, No. 4

*Scurvy: Factors Affecting Antiscorbutic Value of Foods. A. F. Hess and L. J. Unger, New York City.—p. 221.
*Fat Metabolism of Infants and Young Children: I. Fat in Stools of Breast Fed Infants. L. E. Holt, A. M. Courtney and H. J. Fales, New York City.—p. 241.
Nutrition Clinic in Public School. W. R. P. Emerson, Boston.—p. 251.
*Bovine Tuberculosis in Children. R. S. Austin, Chicago.—p. 264.
Nephritis of Children. L. W. Hill, Boston.—p. 270.

Antiscorbutic Values of Foods.—During the late war there was considerable scurvy among the troops of the various armies; least of all along the western front. The scurvy was mainly of the latent or subacute variety, and influenced the character of some of the infectious diseases. Scurvy also prevailed among the civilian population to a degree far greater then in peace times. In infants the question of scurvy centers about the milk supply. An infant requires fully 1 pint of fresh raw milk daily to protect it from this disorder. If the milk is pasteurized, or stale, or heated for a second time, or rendered more sensitive to deterioration by means of an alkali—and particularly if more than one of these influences are operative—more than a pint is needed. The fact that there is an inverse relationship between the amount of milk consumed and the tendency to scurvy in the authors' opinion show that the poison is not an exogenous toxin and argues in favor of the disorder being primarily a deficiency disease.

Hess and Unger point out that milk does not necessarily lose its antiscorbutic value in the course of drying. If it is dried rapidly, even at a temperature of about 240 F., it retains sufficient of the protective factor to have curative value, provided, naturally, that it was fresh at the time of drying. In considering the question of destruction of this "vitamin" by heat or by alkali, the duration of exposure to the detrimental influence is of the greatest importance. Babies fed on pasteurized milk should receive an antiscorbutic from the time they are a few weeks of age, as there is no reason for allowing the negative balance of "vitamin" to continue for a longer period. A small amount of orange juice will answer the purpose, and is potent for a period after alkalinization. Its value does not reside in its laxative properties, or in its salt content, as "artificial orange juice" has practically no therapeutic effect. If orange juice is filtered, boiled, and rendered faintly alkaline it may be given intravenously without causing any slightly untoward reaction. In this way a very prompt cure can be effected.

From a pathogenic point of view, a result obtained by this route is of interest as demonstrating that scurvy can be counteracted by a therapy acting quite apart from the alimentary tract. Diuresis and catharsis do not play an important rôle in the cure of scurvy, as they may be stimulated to a high degree without alleviating the symptoms. This fact argues against regarding this disorder as essentially toxic in nature. It was found also that giving an antiseptic (sodium benzoate) was without effect. Dehydrated vegetables were ineffective in two instances studied by Hess and Unger in which an equivalent amount of fresh vegetables brought about a cure. They do not infer from this result that dehydration necessarily destroys this "vitamin." In this connection too much attention has been paid to the degree of the heating process, and too little to the more important factors —the age of the vegetables, their freshness previous to dehy-

dration, their manner of preservation, etc. For almost a year strained canned tomatoes have been given by Hess and Unger, in place of orange juice, to a large number of infants. This substitute has been found a very effective antiscorbutic, and is well borne by babies a few weeks of age. It has the advantage of low cost and availability, and therefore is of particular value for the infants of the poor.

Fat Metabolism of Infants.—The fat of the stools of normal breast fed infants, according to the observations made by Holt and others, averaged 34.5 per cent. of the dried weight and frequently was as high as 50 per cent. The soap fat in the best stools predominated over the other forms of fat, averaging 57.8 per cent. of the total fat, as determined on the dried stool. The average stool of the normal breast fed infants showed a soap fat of 43.1 per cent. of the total fat, as determined on the dried stool, which would correspond to over one third of the total fat of the fresh stool. The neutral fat in the best stools averaged 15.9 per cent. of the total fat; in the average stool the neutral fat was 20.2 per cent. of the total fat. The amount of neutral fat is not affected by the drying process. No constant relation was shown between the percentage of fat in the mother's milk and the percentage of total fat and its distribution in the stool. With a higher total intake of fat, the fat percentage and the soap fat in the stool were somewhat increased. A range of fat absorption from 90.3 to 99.2 per cent. of the intake was found in healthy breast fed infants.

Bovine Tuberculosis in Children.—An analysis of twenty-four cases of tuberculosis in children and infants is made by Austin with special reference to the bovine or human type of infecting organism in each case. Seven of the twenty-four patients were infected with the bovine type of the tubercle bacillus. In the twelve cases in which the primary focus was noted, it was found in the right lung in six, in the left lung in two, in three cases apparently in a bronchial lymph nodule on the right side, and in one case in the intestine. One of the bronchial node cases and the intestine case had bovine infections. The corneal scratch test was not very satisfactory. Although consistently negative in rabbits with human type infection, it was not always positive in the bovine type animals.

Austin sounds a note of warning in regard to infection through cow's milk, it being generally considered that bovine infection is most likely to occur in this way. Notwithstanding that all milk sold in Chicago is supposed to be pasteurized, yet here are seven cases of bovine infection out of twenty-four cases of tuberculosis in children. This fact, he thinks, points to the necessity of home pasteurization of cow's milk.

American Journal of Medical Sciences, Philadelphia

April, 1919, **157**, No. 4

*Roentgen-Ray Intoxication: Disturbances in Metabolism Produced by Deep Massive Doses of Hard Roentgen Rays. C. C. Hall and G. H. Whipple, San Francisco.—p. 453.
Importance of Motion Field in Comparison with Form Field in Failing Vision. W. G. Spiller, Philadelphia.—p. 483.
*Congenital Dextrocardia. F. A. Willius, Rochester, Minn.—p. 485.
*Protozoal Infections of Intestines. R. Pollock and R. J. Pickard, San Diego.—p. 492.
*Case of Chronic Jaundice—Family Type. J. I. Johnston, Pittsburgh. —p. 500.
*Principle of Blood Grouping Applied to Skin Grafting. H. K. Shawan, Detroit.—p. 503.
*Differential Diagnosis Between Mitral Stenosis and Aortic Insufficiency. E. H. Goodman, Camp Jackson, S. C.—p. 509.
*Cardiothoracic Ratio: Index of Cardiac Enlargement. C. S. Danzer, Brooklyn.—p. 513.
*Clinical Studies in Cutaneous Aspects of Tuberculosis. III. Therapeutic Management of Tuberculids with Arsphenamin. J. H. Stokes, Rochester, Minn.—p. 522.
Prevalence of Trichomyces Infections in Western New York, with Special Reference to B. Fusiformis. R. R. Mellon, Rochester, N. Y. —p. 540.
Factor of Safety in Pulmonary Circulation. J. P. Simonds, Chicago. —p. 548.

Roentgen-Ray Intoxication.—This paper deals with the general constitutional reaction which follows prolonged exposures to the roentgen rays of the Coolidge tube. The experiments made by Hall and Whipple on dogs show the increase in nitrogen elimination and in blood nonprotein nitrogen which precedes fatal intoxication. Vomiting and diarrhea dominate the clinical picture until death, which, as a rule, follows on the fourth day. The blood nonprotein nitrogen commonly shows a marked increase (twice normal) on the day before death and often more than three times normal on the day of death. The elimination of urinary nitrogen is increased on the day following the roentgen-ray exposure and remains high until death, often an increase of 50 to 100 per cent. above the normal base line. The so-called roentgen-ray anaphylaxis or hypersensitiveness to a second properly timed roentgen-ray exposure finds no support in the authors' experiments. In fact, there is some evidence for a slightly increased tolerance to the second dose. Neither do the experiments yield any evidence of roentgen-ray nephritis.

Congenital Dextrocardia.—Three cases are cited by Willius in which this anomaly was discovered accidently. One patient presented herself for examination complaining of chest pains of the intercostal neuralgic type. A second presented herself for examination on account of a pelvic complaint. The third presented herself for examination on account of goiter. The electrocardiograms of the last two cases essentially confirm the findings recorded previously. Willius says that inversion of the deflections in Lead I is definite evidence of congenital dextrocardia with situs transversus; hence electrocardiography should be recognized as a valuable adjunct in the differential diagnosis of cardiac displacements.

Protozoal Infections of Intestines.—The incidence and behavior of these organisms in other then tropical regions and the pathogenicity and treatment of certain of the flagellates are discussed by Pollock and Pickard. They urge that all patients presenting obscure bowel symptoms, especially if anemic or achylous, should have the stools carefully searched for parasites. And it should be borne in mind that the pathogenicity and behavior of the intestinal protozoa vary under different conditions of climate, latitude, exercise, diet and medicinal treatment. The flagellates (monads) are capable of distinctly pathogenic behavior. The most satisfactory treatment they have applied to the monads up to the present is the double mercury treatment, the combined use of emetin hypodermically and arsphenamin intravenously. In a group of forty-six cases seen by the authors during the past year, with symptoms seeming to demand a careful search for intestinal parasites, nineteen, or 41.3 per cent., showed protozoal parasites, many times accompanied by other intruders.

Chronic Jaundice of Family Type.—A man and his sister presented exactly the same picture clinically. Their histories were practically the same, the man complaining only of a large leg ulcer besides the jaundice, and the sister complaining of dysmenorrhea in addition to her icterus. They were otherwise well. Johnston points out that the presence of uterine stenosis in the woman and a talipes equinus in the man may be suggestive hints of congenital factors present in both, some such factor producing hemolytic jaundice.

Blood Grouping Applied to Skin Grafting.—The clinical observations made by Shawan proved that autografts grow best. Isografts obtained from donors of the same blood group as the recipients or from Group IV donors became permanent takes and grew almost if not equally as well as autografts. Isografts where the donor and recipient were of different groups did not remain as permanent groups growths except when Group IV skin was used or when the recipient was a member of Group I. Group I recipients grew permanent skin from donors of all of the four groups and apparently equally well. Group IV skin grew permanently on recipients of all groups, but only Group IV grafts and autografts remained as permanent takes on Group IV recipients. Therefore it may be assumed that skin grafting obeys the principle of blood grouping, as in the transfusion of blood.

Diagnosis of Mitral Stenosis and Aortic Insufficiency.—The features which Goodman considers as being most in favor of the diagnosis of aortic insufficiency are: (1) displacement of the apex-beat; (2) heaving feel of the apex impulse to the palpating hand; (3) hypertrophy of the left

ventricle; (4) vascular signs, i. e., marked pulsation of vessels, Corrigan pulse, capillary pulse, systolic tone in brachial, with arm above the head; (5) blood-pressure increase of pulse-pressure, marked discrepancy between the arm and the leg pressures. In favor of a mitral stenosis are: (1) loud snappy first sound at the apex unless marked by an insufficiency of the mitral valves; (2) absence of apical displacement and of cardiac hypertrophy; (3) systolic tap or shock to the palpating hand; (4) absence of vascular signs; (5) absence of any characteristic blood-pressure phenomena.

Cardiothoracic Ratio in Heart Enlargement.—The cardiothoracic ratio discussed by Danzer is based on the anatomic relationship that exists between the heart and its containing frame, the chest. Wherever a roentgen-ray laboratory exists the facilities are sufficient for this work. The method has been tried out by Danzer and others in a sufficiently larger number of cases (500 or more) to warrant its practicability and usefulness in the estimation of cardiac size, particularly in cases of moderate or early enlargement.

Arsphenamin in Cutaneous Tuberculosis.—This study deals with a group of twenty cases of various types of papulonecrotic tuberculid and erythema induratum in which arsphenamin was used with good effect by Stokes in combination with systemic regimen and roentgen therapy. Over half the cases thus treated had demonstrable tuberculosis, usually in the form of a lymphadenitis. Surgical treatment of the lymphadenitis in nine cases had not demonstrably affected the tuberculid. It would seem that the appearance or the persistence of a cutaneous tuberculid following reasonably complete surgery is an indication for a discontinuance of surgical treatment of the tuberculous focus, and the adoption of a medical means of fortifying the patient against the progress or recurrence of his tuberculous infection. The intravenous administration of arsphenamin appears to afford such a medical means of fortifying the patient's resistance to tuberculosis when combined with antituberculous hygiene and roentgen ray.

Stokes claims that arsphenamin offers an excellent means of treating selected cases of obscure tuberculosis, as evidenced by the presence of a tuberculid in the absence of a demonstrable focus. Its use in febrile, acute or rapidly progressive cases is not advised. Arsphenamin alone is apparently able to produce a striking effect on cutaneous tuberculids. Fifty-three per cent. of seventeen cases treated by Stokes have been completely cleared of lesions, and only 12 per cent. have failed to secure a definite improvement. Arsphenamin is also apparently instrumental in producing a marked constitutional improvement in these cases, evidenced especially by a gain in weight and the disappearance of the "rheumatic" symptoms. The effect of arsphenamin on the tuberculous adenitis where present is indeterminate, but probably not striking. An outdoor life, forced diet, correction of vascular abnormalities and stasis by elastic support, and careful extirpation of secondary foci of pyogenic infection in tonsils, teeth, etc., are subsidiary but important elements in a successful treatment.

Archives of Neurology and Psychiatry, Chicago

April 1, 1919, **1**, No. 4

*Disturbances of Spatial Orientation and Visual Attention, with Loss of Stereoscopic Vision. G. Holmes, London, England, and G. Horrax, Boston.—p. 385.
*Probable Etiologic Factor in Multiple Sclerosis. M. S. Woodbury, Clifton Springs, N. Y.—p. 408.
*Clinical Study of Psychoses Characterized by Distressed Perplexity. A. Hoch, Montecito, Calif., and G. H. Kirby, New York City.—p. 415.
Personality Tests Involving Principle of Multiple Choice. A. Myerson, Boston.—p. 459.
Spinal Cord Injuries in Warfare; W. F. Schaller, San Francisco.—p. 471.

Disturbances of Spatial Orientation and Visual Attention.—The chief symptom in the case cited by Holmes and Horrax was inability to orientate accurately in space objects perceived by either central or extra-central vision, and especially to recognize the absolute relative distances of things seen, though by touch and sound he localized sensible objects as readily as normal persons. His power of distinguishing and comparing lengths and sizes was similarly affected. Stereoscopic vision was abolished; he was unable to see tridimensional objects in perspective and to recognize depth in anything. These symptoms disturbed the performance of various actions in which he relied on sight for guidance. He also presented a severe disturbance of visual attention, which made him unable to perceive readily or at all objects outside macular vision when his attention was held by that on which his eyes were fixed, and a failure to explore space spontaneously with his eyes; yet objects which threw even large images in his retina were generally perceived whole. Further, he was unable to evoke topographic memories acquired in the past and to learn his way in new surroundings. Finally, he had various anomalies of the ocular movements and reflexes, as failure to fixate promptly objects seen, to accommodate near objects, and to blink reflexly to threatening gestures. His visual fields were reduced by blindness of both lower quadrants, but the acuity of central vision was good.

Focal Infection Cause of Multiple Sclerosis.—The basis of Woodbury's paper rests on the observation of six cases of multiple sclerosis. All of the six were symptomatically typical. Two were relatively early, the others were more advanced. Spasticity of both legs and bilateral Babinski sign were present in all; abdominal reflexes were uniformly absent; all, except one early case, showed pallor of the temporal half of each disk; nystagmus and intention tremor were present in all. All had complained of bladder irritability which had appeared early in each instance; incoordination of upper as well as lower extremities was present in all. Sensory symptoms were practically absent. The only possible etiologic condition regionally common to all was some type of inflammatory disease of the upper respiratory tract. Every one of the six patients had obviously chronically infected tonsils which Woodbury thinks is worthy of note. This was the one pathologic feature in addition to the disease of the nervous system which was common to all, and the only one which seemed to give any definite inkling of etiology except that five of the patients had also—as dentograms revealed—peridental infection. This, however, was not strikingly extensive, either in the number of teeth involved or in the degree of involvement. No dental observations were made on the other case. Therefore, Woodbury offers the theory of a possible localized infective source, distributing its toxic products through the circulation, as a cause of multiple sclerosis. Four of these patients had their tonsils removed. Two relatively early cases report themselves as "well," despite the fact that both had previously been greatly hampered by motor incapacity and bladder trouble; one of these developed infected antrums after the extraction of periabscessed teeth, but reports a favorable convalescence. In one rather advanced case, four months after observation, the patient is walking without a cane for the first time in several years. In another advanced case, the patient walks with much greater ease, one and one-half years after observation; is less easily fatigued, and pursues his work in the lumber business daily. These four are all leading active, useful lives.

Study of Psychoses.—Seven cases which presented as the most prominent symptoms a more or less pronounced perplexity associated with distress are reported by Hoch and Kirby. They believe that these attacks represent a definite reaction type, because in spite of certain differences, the cases are remarkably uniform.

Archives of Ophthalmology, New Rochelle, N. Y.

March, 1919, **48**, No. 2

Plastic Surgery of Eyelids After War Injuries. T. H. Butler, Birmingham, England.—p. 103.
Injuries of Superior Oblique Muscle. A. C. Snell, Rochester, N. Y.—p. 111.
Carcinoma of Orbit. A. Knapp, New York City.—p. 120.
Pupil in Glaucoma. J. Dunn, Richmond, Va.—p. 126.
Device for Examination of Distant Stereoscopic Vision for Form and Colors. M. Cohen, New York City.—p. 142.
Jaw Winking Phenomenon and its Explanation. A. Lutz, Habana.—p. 144.

Arkansas Medical Society Journal, Little Rock

March, 1919, **15**, No. 10

Extracantonment Zone Sanitation: Camp Pike and Eberts Field, Arkansas. J. C. Geiger, R. E. Tarbett, C. C. Pierce, U. S. P. H. S. —p. 181.

Boston Medical and Surgical Journal

April 3, 1919, **180**, No. 14

Natural and Artificial Carbon Dioxid Waters in Cardiac Diseases. S. Baruch, New York City.—p. 384.
Pneumonia and Empyema. H. Gray, Camp Devens, Mass.—p. 388. To be continued.

Georgia Medical Association Journal

January, 1919, **8**, No. 9

Syphilis Clinic of Emory University, Atlanta, Ga. W. B. Emery, Atlanta.—p. 171.
So-Called Marginal Eczema. C. Swanson, Atlanta.—p. 172.
Torn Cervix vs. Uterine Inertia. E. R. Corson, Savannah.—p. 174.

Iowa State Medical Society Journal, Des Moines

March 15, 1919, **9**, No. 3

Hospital Standardization. P. B. McLaughlin, Sioux City, Ia.—p. 69.
Mesotendons of Ankle. H. J. Prentiss, Iowa City.—p. 71.
Physiologic Methods of Tendon Transplantation. A. Steindler, Iowa City.—p. 75.
Diagnosis of Stomach Diseases. J. F. Studebaker, Fort Dodge.—p. 78.
Paranoia, with Special Reference to Paranoid Tendencies of Kaiser. T. B. Throckmorton, Des Moines.—p. 82.

Journal of Cutaneous Diseases, Chicago

March, 1919, **37**, No. 3

Pemphigus in an Orang-Utan Infested with Strongyloides (Intestinalis?) and Dying from Advanced Tuberculosis. F. D. Weidman, Philadelphia.—p. 169.
Keratolysis Exfoliativa. G. W. Wende, Buffalo.—p. 174.
Influenza Alopecia. M. J. Morrissey, Hartford, Conn.—p. 177.
Roentgen Ray and Radium in Treatment of Basal Cell Epithelioma. G. M. MacKee, New York City.—p. 179.

Journal of Orthopedic Surgery, Boston

April, 1919, **1**, No. 4

*Tendon Transplantation of Foot. Physiologic Method. A. Steindler, Iowa City.—p. 187.
Impairment of Function of Hand due to War Injuries. C. R. Metcalf, Concord, N. H.—p. 198.
Relationship of Fracture of Lower Epiphysis of Tibia to Arrest of Growth of Bone. R. C. Elmslie, London, England.—p. 215.
Results Obtained by Treating Weak Feet Along Military Lines Among Civilians. L. C. Donnelly, Detroit.—p. 219.
Splint Devised for Treatment of Stiff Metacarpo Phalangeal Joints. F. E. Lewis, Liverpool, England.
Changes Produced in Growing Bone After Injury to Epiphyseal Cartilage Plate. S. L. Haas, San Francisco.—p. 226.

Tendon Transplantation of Foot.—Of these forty-eight cases, cited by Steindler, thirty-six showed good result, or 75 per cent. The rest are divided into fair, poor, and undetermined on account of too recent operation. By eliminating all cases in which less than one year had elapsed between operation and time of writing, there remain twenty-four cases which have been observed one year after operation. Of these, seventeen cases, or 70 per cent., showed good result. By again eliminating all cases which are still in some kind of supporting contrivance, as cast or brace, we have at present thirteen cases, or 57 per cent., which have definitely shown good operative results. Of the four remaining in case it is to be expected that their present good result will be added to this number, making a definite percentage of good results, reaching the neighborhood of 70 per cent. for all cases. The technic of the operation done was described by Steindler in previous publications.

Laryngoscope, St. Louis

March, 1919, **29**, No. 3

Tic Douloureux, With Special Reference to Treatment by Alcohol Injections.—E. R. Faulkner, New York City.—p. 130.
Ankylosis of Crico-Arytenoid Articulation: Case Presenting Involvement of Both Joints and Requiring Tracheotomy. T. J. Harris, New York City.—p. 139.
Two New Instruments for Reaming Upper End of Eustachian Tube in Radical Mastoid Operation. A. Kahn, New York City.—p. 143.
Vestibular Reactions in Central Nervous Diseases: Report of Three Cases. G. H. Willicutt, San Francisco.—p. 145.
Vincent's Angina. H. A. Kiefer, Los Angeles.—p. 150.
Parosmia. W. H. Dudley, Los Angeles.—p. 156.
Plea for Early Training of Defective Speech. M. S. Stell, Philadelphia.—p. 160.
Aurist and Lip-Reading. E. B. Kessler, Omaha.—p. 163.
Alar Collapse Following Septal Abscess in Infant. D. N. Husik, Philadelphia.—p. 166.

Medical Record, New York City

April 5, 1919, **95**, No. 14

Cancer Problem—A Chapter in Medicine. I. Levin, New York City. —p. 551.
Physical Exercise in Later Life. R. E. Coughlin, Brooklyn.—p. 558.
*Auscultatory Percussion. A. L. Benedict, Buffalo.—p. 561.
Nasal Cauterization in Treatment of Certain Chronic Affections (Method of Pierr Bonnier). A. Leprince, Nice, France.—p. 564.

Auscultatory Percussion.—Benedict describes this method of percussion which he feels is not used as much as it deserves to be. He says that although the general principles involved are the same as for any other diagnostic method based on hearing, it can not be acquired and judged like a mere novel detail of ordinary percussion or of auscultation, but requires considerable experience and practice, even if one be skilful.

Michigan State Medical Society Journal, Grand Rapids

March, 1919, **18**, No. 3

Hypophysis and Hypophysial Disease. E. W. Schnoor, Grand Rapids. —p. 87.
Organic and Functional Achylia Gastrica. J. E. Meengs, Grand Rapids. —p. 96.
One Hundred and Seventy-Seven Goiters in Five Hundred and Eighty-Three Registrants. S. Levin, Lake Linden.—p. 98.
Vertebral Disease as Cause of Referred Pain: Report of Cases. J. B. Jackson, Kalamazoo.—p. 104.
Treatment of Empyema. C. D. Brooks, Detroit.—p. 107.
Michigan's Cooperation with the Government in Venereal Disease Problem. H. R. Varney, Detroit.—p. 110.

Military Surgeon, Washington, D. C.

April, 1919, **44**, No. 4

Management of Venereal Disease at Camp Meade, Md. G. L. Qualls and S. L. Meylackson, M. C., U. S. A.—p. 331.
*Treatment in Relation to Mechanism of Shell Shock L. C. Frost, M. C.—p. 350.
*Aero Ambulance. S. M. Strong, M. C.—p. 361.
Squad Room Barracks or Unit Barracks? C. Lynch and J. G. Cumming, M. C.—p. 363.
Prevention of Trench Fever Among Hospital Personnel: Successful Method Applied in Base Hospital in France.—p. 370.
Hodgen Suspension Splint. H. G. Mudd, M. C.—p. 376.
*New Cystoscopic Findings in Cases of Enuresis. I. A. Pelzman, M. C.—p. 383.
Six Hundred and Thirty-Eight Herniotomies. W. T. Dodge, Camp Sherman, Ohio.—p. 385.
Brief Résumé of Roentgen Ray Work in an Evacuation Hospital. I. H. Lockwood, M. C.—p. 389.

Treatment of Shell Shock.—In Frost's opinion the treatment of shell shock should be governed by the following rules: (1) It should be given only by medical officers specially trained in this work, one of whom should be stationed at each advanced aid station; (2) it should be instituted at the earliest possible moment; (3) it should be directed away from physical symptoms and toward psychic readjustment; (4) and most important, it must be carried on in constant conscious relation to the cause and mechanism of the condition as exemplified in the individual case.

Aero Ambulance.—Strong describes his design of aero ambulance in use at Eberts Field, Lonoke, Ark., for the transportation of patients. It has proved highly efficient and satisfactory. The ambulance is a remodeled Curtis biplane type J. N. 4 D, and it can be loaded in the same length of time ordinarily consumed in placing a single patient in the present type of automobile ambulance. Room is made for the patient in the rear cockpit. Emergency equipment is carried in a square canvas pack (similar to the present Hospital Corps pouch), with a strap so that it can be slung over the shoulder. The pack is suspended at the back of the front seat in the rear cockpit. A fire extinguisher and wrecking tools are also on board. When traveling to the

scene of a wreck, the medical officer is seated in the rear cockpit and, being supported by a leather cushion, this permits him to be in a very comfortable position and enables him to act as an observer to assist in locating the wreck. The ship is well balanced, the load being distributed in the rear cockpit so near the normal load bearing points as not to make the ship tail-heavy, and requiring but few adjustments.

Cystoscopic Findings in Enuresis.—In this preliminary report by Pelzman which is based on an examination of sixty cases of enuresis, a new cystoscopic picture is reported. In the routine cystoscopic examinations at the base hospital at Camp Meade, Maryland, over a period of five months, forty cases of enuresis were encountered. The history in each of these cases was practically identical. The condition starts in infancy. There was always a history of at least one other member of the family affected by the same condition, and in several, more than one additional member of the family was so affected. The men were neurotic, and of an unstable type; almost without exception they would state that they were nervous. Cystoscopic examination disclosed no residual urine—the bladder was filled with from 300 to 400 c.c. of sterile water. A trabeculated bladder was found, trabeculation varying in degree from a mild to a very marked type. In most instances the floor of the bladder was involved, the trabeculations radiating outward and posteriorly from the ureteral orifices; in the more marked cases the entire bladder wall presented this picture. The findings were practically the same as those presented by the trabeculated bladders in tabetics. Very few of the cases showed any evidence of cystitis, although in several there were signs of a moderate degree of trigonitis.

Modern Hospital, Chicago

March, 1919, **12**, No. 3

Benjamin Stickney Cable Memorial Hospital, Ipswich, Mass. E. E. Stevens, Boston.—p. 157.
Hospital Library and Some of Its By-Products. E. Green, St. Louis.—p. 161.
Brave Blinded Soldiers of St. Dunstan's Hospital. A. Pearson, England.—p. 163.
Attitude of Middle Ages Toward Crippled and Disabled. D. C. McMurtrie, New York City.—p. 164.
Joint Purchase of Hospital Supplies. T. E. McGarr, Albany, N. Y.—p. 168.
Reeducation for Maimed and Disabled Officers and Privates. J. O. Cobb, Chicago.—p. 170.
Hospitals of Port of Embarkation. New York Correspondent of Modern Hospital.—p. 172.
Farming and Gardening in State Institutions. E. D. Whipp, Springfield, Ill.—p. 175.
Children's Pavilion at Sharon Sanatorium. W. A. Griffin, Sharon, Mass.—p. 176.
Meaning of Case Records. J. M. Baldy, Philadelphia.—p. 178.
Hospital Accounting. C. A. Porter and H. K. Carter Modern Hospital Staff.—p. 181.

Nebraska State Medical Journal, Norfolk

March, 1919, **4**, No. 3

Bureau of Ethics and Standardization for Medical Profession of Nebraska. C. A. Roeder, Omaha.—p. 63.
Treatment of Empyema by Closed Method. C. Emerson, Lincoln.—p. 65.
Antiseptics in Surgery. J. S. Welch, Lincoln.—p. 67.
Fractures of Arm (Simple and Compound): Value of Dakin and Dichloramin-T Solution in Treatment of Infected Cases. W. H. Pruner, Omaha.—p. 70.
End Results of Tonsillectomy. D. D. Sanderson, Lincoln.—p. 75.
Influenza. H. H. Waite, Lincoln.—p. 76.
Dizziness from Ocular Disturbances. H. B. Lemere, Omaha.—p. 80.
Aural Vertigo. A. R. Knode, Omaha.—p. 82.
Cardiovascular Vertigo. A. Sachs, Omaha.—p. 86.

New Jersey Medical Society Journal, Orange

March, 1919, **16**, No. 3

History of Influenza. E. J. Ill, Newark.—p. 73.
Influenza Epidemiology. C. V. Craster, Newark.—p. 74.
Bacteriology of Influenza. R. N. Connolly, Newark.—p. 76.
Pathology of Influenza. J. W. Gray, Newark.—p. 78.
Clinical Aspect of Influenza. J. H. Rosecrans, Hoboken.—p. 79.
Treatment of Influenza. W. Petry, Newark.—p. 80.
Complications of Influenza. W. F. Keim, Newark.—p. 82.
Cult of Cold. C. D. Bennett, Newark.—p. 84.
New Handling of an Old Problem—Tuberculosis. M. J. Fine, Newark.—p. 87.

New York Medical Journal, New York

April 5, 1919, **109**, No. 14

Alkali Treatment Applied to Acidosis of Epidemic Influenza. T. C. Ely, Philadelphia.—p. 573.
Encephalitis in Infant, Following Influenza. Z. Sharfin, New York City.—p. 576.
"Dear Brutus": Dramatist's Use of the Dream. S. E. Jelliffe and L. Brink, New York City.—p. 577.
Case of Sarcoma in an Infant. H. B. Mills, Philadelphia.—p. 583.
Influenza Pneumonias as Studied with Roentgen Ray. J. S. Diamond, New York City.—p. 584.
Illuminated Trap for Night Flying Insects. W. O. Owen, Washington.—p. 590.
Artificial Pneumothorax in Pulmonary Tuberculosis. L. S. Peters, Albuquerque, N. M.—p. 591.
Army Hospital Trains. C. A. Mayo, New York City.—p. 594.
Prophylaxis and Treatment of Influenza. L. T. de M. Sajous, Philadelphia.—p. 597. To be continued.

South Carolina Medical Association Journal, Greenville

March, 1919, **15**, No. 3

Observations on One Thousand Four Hundred Cases of Pneumonia. G. A. Clark, Camp Jackson, S. C.—p. 386.
Annual Report Field Secretary State Board Health. A. I. Rembert, Columbia.—p. 394.
Annual Report of Health Officer Greenville County. S. J. Taylor, Greenville.—p. 398.
Heat in Treatment of Cancer of Uterus. W. W. Fennell, Rock Hill, S. C.—p. 399.
Diphtheria of Fauces, Larynx, Trachea and Bronchi. E. W. Carpenter, Greenville.—p. 404.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

March, 1919, **27**, No. 3

Nitrous Oxid-Oxygen Anesthesia in Major Surgery. F. K. Camp, Oklahoma City.—p. 49.
Postoperative Pneumonia. J. Worley, Dallas, Texas.—p. 56.

Southern Medical Journal, Birmingham, Ala.

March, 1919, **12**, No. 3

*Clinical Value of Psychologic Tests in Examination and Diagnosis of Mental Cases. E. S. Fearing, Norfolk, Va.—p. 115.
Study of Digestive Psychoses. G. M. Niles, Atlanta, Ga.—p. 120.
Importance of Routine Wassermann in Tuberculosis. A. G. Shortle, Albuquerque.—p. 123.
Public Health Service Problem for National-Wide Control of Venereal Diseases. C. C. Pierce, Washington.—p. 130.
Community Status as Measure of Freedom from Communicable Disease. P. H. Bryce, Ottawa, Canada.—p. 135.
Way of Combating Soil Pollution as Used by One of North Carolina Cooperating Counties. J. S. Mitchener, Kinston, N. C.—p. 137.
Peripheral Nerve Injury in War Surgery: Routes of Approach. C. S. Venable, San Antonio.—p. 139.
Removal of Uterine Stones by Noncutting Method. E. P. Merritt, Atlanta.—p. 143.
*Lymphangioma of Chest in Child. V. B. Philpot, Houston, Miss.—p. 147.
Bone and Cartilage Grafting in Correction of External Deformities of Nose. L. Cohen, Baltimore.—p. 151.
Ocular Syndrome of Dental Origin. H. H. Martin, Savannah, Ga.—p. 157.
Medicine and Surgery of Twentieth Century Viewed from Several Angles. B. C. Keister, Roanoke, Va.—p. 160.

Value of Psychologic Tests in Mental Cases.—Fearing is firmly of the opinion that an ideal situation is presented when a psychologist and a medical man collaborate on mental cases. This is especially true in the field of juvenile psychopathies and delinquents. Furthermore, that many of the puzzling cases which seem to involve some degree of nervous or mental inferiority and which present various contradictory subjective symptoms should not be diagnosed without reference to the scores resulting from properly conducted psychologic tests. A knowledge of such tests is not the only essential. They are only valuable when conducted by an examiner trained in the methods of laboratory psychology.

Lymphangioma of Chest of Child.—Philpot's patient was a little girl, aged 4 years. She was born with two small tumefactions—one below the axilla and one just above the clavicle to the left of the neck. The tumors grew but little at first, then a very rapid growth took place and constitutional symptoms manifested, the patient becoming weak and ema-

ciated and at times having abnormally high temperature which was supposed to be due to some inflammation in the tumor. An incision was made in the tumor below the axilla, hoping to remove it, sac and all; but after draining the fluid out, it was found that the sac extended deep between the ribs and formed pockets all through the upper left chest, one of the deepest pockets extending to the scapula behind and another, between the clavicle and scapula, forming the large cyst to the left of the neck above. The sacs were adherent to the bones everywhere and all the sacs communicated; hence, drainage of all was accomplished. About a quart of blue fluid was drained off. After three curettings and swabbings a complete cure was effected.

Surgery, Gynecology and Obstetrics, Chicago

April, 1919, **27**, No. 4

Surgical Treatment of Empyema. A. V. Moschcowitz, M. C.—p. 337.
Empyema at Camp Jackson, S. C. C. Eggers, New York City.—p. 348.
Treatment of Purulent Pleuritis (Empyema) at Camp Pike Base Hospital. B. P. Diedrich, Camp Pike, Ark.—p. 363.
Empyema. J. G. Sherrill, Louisville, Ky.—p. 371.
Negative Pressure Vs. Free Open Drainage in Thoracic Empyema. J. C. O'Day, Honolulu, Hawaii.—p. 375.
Empyema Problem. E. G. Beck, Chicago.—p. 379.
Perforated Gastric and Duodenal Ulcers. H. M. Richter, Chicago.—p. 399.
*Are We Justified in Removing a Comparatively Healthy Gallbladder? W. H. Magie, Duluth, Minn.—p. 402.
*Parotitis as Postoperative Complication. C. U. Collins, Peoria, Ill.—p. 404.
Indications for Operation of Cranial Decompression. W. Sharpe, New York City.—p. 407.
Interposition Operation for Cure of Prolapsus Uteri and Cystocele. F. W. Johnson and L. E. Phaneuf, Boston.—p. 418.
*Ununited Fracture of Patella and Olecranon. F. H. Albee, New York City.—p. 422.
Some Technical Points in Gastro-Enterostomy and Gastroplication. A. Schwyzer, St. Paul, Minn.—p. 428.
Surgical Treatment of Goiter. M. F. Porter, Fort Wayne, Ind.—p. 431.

Are We Justified in Removing Healthy Gallbladders?—Cholecystectomy, in Magie's opinion, should be resorted to (1) in all cases of hydrops with stricture of the cystic duct; (2) in many cases of acute or threatened gangrene of the gallbladder; (3) in all cases complicated with embedded stones in the cystic duct with ulceration produced by contact with the embedded stone that when healed would probably cause the stricture; (4) in all very thick-walled gallbladders due to fibrous or calcareous degeneration; (5) in all cases of ulceration due to pressure of large stones; (6) in cancer of the gallbladder where the disease is limited to the gallbladder.

Parotitis as Postoperative Complication.—A trifle over one tenth of 1 per cent. of Collins' patients developed postoperative parotitis, and one died while waiting for operation. A study of these cases showed that postoperative parotitis is more apt to occur after abdominal operations than operations on any other part of the body. Its development is favored by a dry condition of the mouth and a lack of fluids in the body. The infection usually ascends through Stenson's duct. In patients whose abdominal condition makes it necessary to withhold food and drink from the mouth and stomach for a time, prophylactic treatment should be instituted. Collins advises that the mouth should be kept clean and moist by its own secretions and the body should be supplied abundantly with water. A good way to excite the secretions of the mouth and to keep a current of saliva flowing down Stenson's duct is to allow the patient to suck a stick of lemon candy after operation. A very accurate and effective way to supply the body with fluid is to administer salt solution by hypodermoclysis. If the prophylactic treatment fails and parotitis develops and the inflammation is increasing, or is no better by the third or fourth day, the gland should be uncovered by a free incision and punctured in several places with blunt forceps and the incision packed with wet sterile gauze as suggested by Blair.

Ununited Fracture of Patella and Olecranon.—In these cases Albee uses an inlay graft. For the patella cases the graft is H-shaped and is taken from the head of the tibia. For the olecranon a sliding graft is used.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 15, 1919, **2**, No. 3037

Half a Century of Smallpox and Vaccination. J. C. McVail.—p. 297.
*Functional Paralysis of Diaphragm in Two Cases with Acceleration of Respiration. A. Watson and J. S. Meighan.—p. 303.
*Pneumothorax Paradox. F. C. Coley.—p. 304.
*Case of Artificial Double Pneumothorax. A. McCallum.—p. 305.
Epidemic Pneumonic Influenza as Seen in Malaya. G. W. Scott.—p. 305.
*Occurrence of Morgan's Bacillus in Chronic Discharging Wounds. H. E. Whittingham.—p. 306.

Functional Paralysis of Diaphragm.—Attention has been directed recently to the rapid, shallow type of breathing occurring in late cases of gassing, and Haldane has associated the condition with an exaggeration of the Hering-Breuer reflex. The condition has also been observed in cases in which nervous symptoms have developed as the result of shell shock or other disturbances. The observations made by Watson and Meighan in two cases seem to indicate that a paresis or paralysis of the diaphragm, the result of functional disturbance of the center of the phrenic nerves, may account for the acceleration in breathing in some cases. Tracings taken from the two patients seemed to indicate a failure in the action of the diaphragm, and the authors suggest that it is probable that the acceleration in rate was due to this. They found that no discomfort was caused by breathing at 75 a minute, but when the rate was increased to about 170 a minute, it could not be maintained for any length of time. So long as it was maintained it showed no decrease in the abdominal movements.

Pneumothorax Paradox.—Coley calls attention to the fact that an artificial pneumothorax may relieve shortness of breath. The explanation he gives of this paradox is that the dyspnea in phthisis is not mainly mechanical and due to the amount of lung tissue which is disabled by structural disease: it is toxic. The artificial pneumothorax reduces the output of toxin.

Artificial Double Pneumothorax.—McCallum was not a little surprised to find a patient breathing quite comfortably and moving about with no embarrassment, although, in the routine treatment of a case of pulmonary tuberculosis by artificial pneumothorax he had produced a double pneumothorax of some considerable size through a patency existing between the right and left pleural spaces.

Morgan's Bacillus in Chronic Discharging Wounds.—Whittingham noted that certain deep wounds, which were moderately clean when first seen, gradually went from bad to worse in spite of careful treatment. These cases ultimately developed chronic discharging sinuses, the discharge having a peculiar odor very like that of a bacillary dysentery stool. Several of these patients were obviously suffering from a toxemia; blood cultures performed were negative. Cultures made from wound discharges of six of these cases revealed the presence in all of an organism identical with Morgan's No. I bacillus. This organism was the predominant one in most instances, but other organisms, such as streptococcus and staphylococcus, were numerous. Autogenous vaccines of Morgan's bacillus, given in two of these cases, greatly improved the wound and general toxic condition of the patient. In two cases there was a marked local and general reaction after the first inoculation, but when this passed off there was a distinct improvement in the condition of the patient.

Dublin Journal of Medical Science

March, 1919, **147**, No. 567

Half a Century's Review of Marriages and Births in Ireland. W. J. Thompson.—p. 101.
Endothelioma of the Ovary. J. S. Ashe.—p. 119.

Glasgow Medical Journal

March, 1919, **91**, No. 3

*Hernia Across Lesser Sac of Peritoneum. J. H. Pringle.—p. 129.
Rickets. L. Findlay.—p. 147.

Hernia Across Lesser Sac of Peritoneum.—Four patients were operated on by Pringle on account of well-marked gastric symptoms, and in each of them it was found that practically the whole of the small bowel had herniated into and across the lesser sac of peritoneum. The only portion that had not been herniated was the last 6 to 8 inches of the ileum which formed the emerging coil of the bowel. In each of them the bowel had entered the lesser sac through that portion of the transverse mesocolon which is bounded by the vascular arch formed by the middle and left colic arteries, i. e., through that part of the mesocolon where it is usually divided when one makes a posterior gastro-enterostomy. In two of the patients the bowel escaped from the lesser sac into the general peritoneal cavity again through the gastrohepatic omentum, and in the other two through the gastrocolic ligament. Pringle has found records of only five other cases which seem to have any bearing on the subject, and of these, only two were operation findings.

Journal of Pathology and Bacteriology, Edinburgh and London

November, 1918, **22**, No. 2

Biochemistry of Pathogenic Anerobes: V. Vibrion Septique. C. G. L. Wolf.—p. 115.
*Character and Properties of "Reading" Bacillus, on Which a New Method of Treatment of Wounds has been Based. R. Donaldson. —p. 129.
Arthritis Deformans and Spondylitis in Ancient Egypt. A. Ruffer. —p. 152.
Strains of Meningococci Hypersensitive to Agglutination. H. W. C. Vines.—p. 197.
*Studies on Streptococci Recovered from Sick and Wounded Soldiers in France. R. H. Malone, and L. J. Rhea.—p. 210.
Simple Apparatus for Isolating Single Organisms. R. H. Malone.—p. 222.

Rôle of "Reading" Bacillus in Wound Treatment.—The new method of treatment for gunshot wounds described by Donaldson depends on the utilization of a spore-bearing anaerobe of a saprophytic nature, a member of the proteolytic group of anaerobic organisms, which is probably present in the majority of gunshot wounds, but whose activities are generally held in abeyance by the system of wound dressing usually adopted. Donaldson has named it the Reading bacillus. It is highly resistant to heat and drying, and grows best in a slightly alkaline medium. It most closely resembles *B. sporogenes* (Metchnikoff). It is nonpathogenic for animals as well as for man when introduced into septic wounds. It does not attack living tissues. The use of salt is not necessary for the successful treatment of gunshot wounds, as was thought by those who advocated the salt-bag method. The success depends rather on the activity of this particular bacillus under conditions favorable to its growth and not on the salt. The rationale of the method depends not on inhibition by the Reading bacillus of the growth of pathogenic organisms in the wound either by reason of the formation by the bacillus of any inhibitory organic acid, or by the production of any bacteriolytic ferment. It acts, however, by virtue of its proteoclastic enzymes as an organic catalyst which hydrolyzes the substrate of dead protein. It distintegrates the protein base from which pathogenic organisms operate, and while so doing, does not itself give rise to fresh toxic substances. Not only so, but it is probably able to hydrolyze also the toxic degradation products of other organisms. In support of this theory a résumé is given of experiments on tetanus and other toxins, which show that the Reading bacillus, out of a series of organisms investigated, is alone able to reduce the toxicity of these toxins. There is one exception, namely, *B. sporogenes* (Metchnikoff), which, however, does not appear to be so potent in this direction as is the Reading bacillus. Donaldson suggests that this ability to modify a toxin like that of tetanus may prove to be of value as a means of differentiating various types of proteolytic organisms, while it introduces new ideas in regard to the biologic processes going on in septic gunshot wounds. Donaldson has termed his method the biologic method.

Studies on Streptococci in Relation to Wound Treatment.—The work done by Malone and Rhea was undertaken primarily with the hope that they might be able to assist the surgeon in forming an opinion with regard to the proper surgical procedure, subsequent treatment and prognosis in cases of streptococcal infection; for all of these depend in some degree on the particular type of infecting organism. Twenty-five of the cases studied were analyzed. In these the lesions chosen for special study bore an indirect connection with the track of the missile and with the outside or contained streptococci in pure, or nearly pure, culture. In direct injuries of the knee joint and indirect injuries with fracture of the femur or tibia, streptococci are usually found before the fifth day. In secondary infections, when there has been no fracture into the joint, streptococci are recovered from the knee-joint fluid from the eighth to the twentieth day. In thoracic injuries with infected hemothorax, these organisms are found between the seventh and fourteenth day after injury. Nonhemolytic streptococci are an uncommon cause of the surgical complication of wounds, except in cases of hemothorax, where they are usually of the types found normally in the respiratory tract. *Streptococcus pyogenes* is the type most commonly found in infected wounds. It is also the most pathogenic. The evidence to support the latter view is as follows: Of eight cases of infection in the knee joint, five developed secondary abscesses in the thigh or calf. *S. pyogenes* was found in the knee fluid and abscesses in each of these cases. Of three cases of infection in the knee joint which required amputation, two contained *S. pyogenes*. Four cases of infected hemothorax ended fatally; three of these were due to *S. pyogenes*. This organism was recovered from the three cases of infected open wounds of the soft tissues, which were complicated by an infected hematoma or abscess. There was only one serious case of infection in the knee joint that was not caused by *S. pyogenes*. There was only one mild case of an infected knee joint in which *S. pyogenes* was the causative agent, and this case had the advantage of very early surgical treatment. So far as streptococci are concerned in the surgical complications of wounds of war, the type which is most common, and leads to the most serious results, is the same as that encountered in civil surgery.

Journal of State Medicine, London

March, 1919, **27**, No. 3

Prevention and Arrest of Venereal Disease in Army, At Royal Institute of Public Health. L. G. Adami.—p. 67.

Lancet, London

March 15, 1919, **2**, No. 4985

Experimental Investigation on Rickets. E. Mellanby.—p. 407.
Chemotherapy in Cutaneous Tuberculosis: Two Cases Treated with Ellis's Picric-Brass Paste. H. J. Gauvain.—p. 412.
*Picric Brass Preparations in Treatment of Lupus and other Forms of Tuberculosis. H. A. Ellis.—p. 415.
*Hysterical Perpetuation of Symptoms. C. H. L. Rixon.—p. 417.
*Influenza in Woolwich District. J. A. B. Hicks, and E. Gray.—p. 419.
Influenza Epidemic in British Guiana. F. G. Rose.—p. 421.
*Influenzal Intra-Abdominal Catastrophes. R. E. Smith.—p. 421.
Intravenous Iodin in Influenzal Bronchopneumonia. D. M. Baillie. —p. 423.
Spontaneous Rupture of Ovarian Cyst. D. N. Kalyanvala.—p. 423.
Nystagmus Caused by Mustard Gas. R. P. Ratnakar.—p. 423.

March 22, 1919, **2**, No. 4986

Half a Century of Smallpox Vaccination. J. C. McVail.—p. 449.
Future of Tuberculosis Problem. P. C. Varrier-Jones.—p. 453.
Y. M. C. A. Agricultural Training Colony, Kinson, Dorset. N. D. Bardswell.—p. 456.
Rat-Bite Fever: Two Cases Treated with Apparent Success by Single Dose of Novarsenobenzol Intravenously. R. V. Solly.—p. 458.
Prophylactic Treatment of Constipation in Children. V. Borland.—p. 459.
Double Resection of Bowel in Four Successful Cases of Gunshot Injury. G. Taylor.—p. 461.
Case of Acute Ascending Myelitis. D. K. Adams.—p. 462.
Two Cases of Intermittent Hydrops Articulorum. R. MacLelland. —p. 463.
Scarlet Red Powder as Tissue Stimulant. A. J. Turner.—p. 463.

Picric-Brass Preparations in Treatment of Lupus.—The combination used by Ellis is formed by combining basic copper sulphate with basic zinc sulphate in the proportion of 86 per cent. basic copper to 14 per cent. basic zinc.

Hysterical Perpetuation of Symptoms.—Cases are cited by Rixon to illustrate the hysterical perpetuation of symptoms

long after the original causes for them had disappeared. In a multiplicity of conditions this is liable to occur, especially in those which run a chronic course; nerve suture, neurolysis and capsulotomy of a traumatic neuroma especially are mentioned. Disordered gaits are perpetuated after fractures and injuries of the lower limbs; sciatica is also especially liable to produce this condition of affairs, and many other diseases with a chronic or semichronic course. Several factors help in suggesting the perpetuation of symptoms, as, for instance, the use of crutches and sticks. Many other things may be the means of suggesting a perpetuation of a disability, and in some cases it is due to autosuggestion.

Bacteriology of Influenza Cases.—*B. influenzae* was present in the sputum examined by Hicks and Gray by direct film in 70 per cent. of cases and by culture in 75 per cent. of cases. Pneumococcus was present in 100 per cent. Other organisms of the *M. catarrhalis* type were present, and mouth organisms. *B. influenzae* was present in nasopharyngeal swabs in 80 per cent. of cases. In pleural fluids they found a pleomorphic streptococcus having many characteristics of the pneumococcus, but often occurring in chains of great length. Some cultures showed hemolytic properties, others did not. The authors regard this as being of *S. mucocus* type. A leukopenia was usually present in severe or fatal cases. In the average pneumonic cases a moderate polymorphonuclear leukocytosis was present. Postmortem and histologic appearances showed the disease to be an acute capillary bronchitis and alveolitis.

Influenzal Intra-Abdominal Catastrophes.—Three points have been observed in the influenzal pseudo-abdominal catastrophe which differ from the true surgical abdominal lesion. (*a*) The movement of the alae nasi. In cases of influenza with acute abdominal pain, even when no physical signs have appeared in the lungs and the respirations are only slightly increased, if the alae nasi are working, the condition is never abdominal. It occurs only in late true abdominal lesions when general peritonitis is well advanced. The movement of the alae nasi may not be very marked when the patient is recumbent, but can be elicited with a little exertion. (*b*) Dulness in the flanks is never present in influenzal pseudocatastrophes except in Class A, in which it is an early sign. (*c*) The facies of the influenzal victim dominates the scene. The anxious terror-stricken look of the true abdominal lesion is not present, as a rule. The anxiety is more lethargic and resigned, and of the medical rather than the surgical type. Smith emphasizes that in some cases an unusually high temperature associated with acute abdominal pain should be regarded with suspicion by the surgeon.

Medical Journal of Australia, Sydney

Feb. 1, 1919, **1**, No. 5

Phagodenic Ulcer of Warm Climates. W. McMurray and F. O. Stokes.—p. 87.
Topography of Taree District. S. R. Beatty.—p. 89.
Fatal Case of Poisoning by Large Dose of Heroin Hydrochlorid. W. R. Boyd.—p. 91.

Feb. 15, 1919, **1**, No. 7

Operative and Reeducative Treatment of Spastic Paralysis. N. D. Royle.—p. 125.
Mechanism for Regulation of Acid-Base Equilibrium of System and Its Bearing on Clinical Medicine. W. F. Litchfield.—p. 127.
Influence of Some Modern Antiseptics on Treatment of Infected Wounds. H. S. Stacy.—p. 130.

Sei-I-Kwai Medical Journal, Tokyo

Jan. 10, 1919, **38**, No. 1

*Fate of Starch Granules Injected into Rabbit's Vein and Tissue. M. Okazaki.—p. 1.

Fate of Starch Granules Injected into Rabbit's Vein and Tissue.—For the purpose of examining whether the starch granules introduced into the rabbit's vein are converted into the substance showing glycogen reaction, 5 c.c. of the prepared starch emulsion (a 0.5 c.c. of sweet potato starch suspended in 20 c.c. common salt solution) was injected daily into the ear vein of a rabbit. Okazaki found that the introduced starch granules were, in most part, retained in the pulmonary capillaries, and not conveyed into other organs by circulation, owing to the larger granules themselves. In two rabbits which were killed on the day of the third and fifth injection, the starch granules in the pulmonary capillaries did not present any chemical reaction for the glycogen substance. In other rabbits which were killed on the sixth day and some after seven days, the positive reactions were demonstrated; the longer rabbits lived the more obvious change noticed. In these cases, it was interesting to note that the majority of the converted granules were enclosed in newly formed giant cells which consisted of the proliferated capillary endothelium. The granules simply suspended in the blood stream presented a less intense reaction. In order to examine the change of the granules in the liver the same emulsion was injected directly into the vena mesenterica by performing laparotomy. The introduced granules were chiefly distributed in the periphery of the acini. As in the lung, the granules surrounded by the proliferical Kupffer's cells and the smaller granules were phagocyted by them. The intensity of the reaction was, also, more marked in such an enclosed granule. From the preceding facts Okazaki concludes that the endothelium of the lung capillary and the Kupffer's cell of the liver capillary show a diastatic action converting the starch into the glycogen reaction substance.

Bulletin de l'Académie de Médecine, Paris

Feb. 18, 1919, **81**, No. 7

Prophylaxis of Rabies. Committee Report. See Paris Letter, p. 1015.
*Dilatation of the Stomach from Lack of Resting Periods. G. Hayem. —p. 178.
Tuberculin Reactivation of Nodose Erythema. A. Chauffard and L. Girard.—p. 182.
Aeroplane Transportation of the Wounded. T. Tuffier.—p. 188.
Projectiles in Mediastinum. R. Le Fort.—p. 195.
Development of Brain in Anthropoid Apes. R. Anthony.——p. 197.

Dilatation of Stomach from Lack of Sufficient Resting Periods.—Hayem calls the type he describes *dilatation par trouble évolutif*, the evacuation being unduly prolonged and lapping over into the period of digestion of the next meal. Contrary to the German method of estimating the progress of the digestion by analysis of the stomach contents one hour after a test meal, Hayem estimates it by ascertaining the course of digestion, the *évolution digestive*. When the course of digestion is abnormal, it may take a very short time or a very long time to be completed. Some stomachs pass the food along at once, the stomach emptying itself in from ten minutes to an hour, but an abnormally protracted course of the digestion is a more common occurrence. The stomach does not empty itself completely between meals, so it never gets a chance to rest, and it is liable to become dilated from this overwork. There is usually with this *dilatation par trouble évolutif* a tendency to hypersecretion and hyperchlorhydria. Treatment with alkaline-saline waters generally corrects the condition provided the stomach is allowed a chance to rest. This can be realized by making the intervals between meals longer, and by reclining an hour before the meal, with a cushion under the seat, to give the stomach a chance to empty itself completely under the influence of gravity. The general rule is to lie down *after* eating, but to combat this form of dilatation the reclining is done *before* eating. Light massage of the stomach while reclining may prove useful in addition. He allows only two meals a day, at 10 a. m. and 7 p. m., or at 11 a. m. and 8 p. m. This gives an interval of nine hours between breakfast and dinner, and by this means the stomach is sure to be empty by mealtime. The patient may lose a little in weight at first, but gradually the whole condition improves; the stomach returns to its normal size and the former weight is soon regained and surpassed. If there is excessive or deficient secretion of gastric juice, the proper alkaline-saline mineral waters should be given as indicated, and if there is ptosis, a supporting belt may prove useful.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 27, 1918, **42**, No. 37

*Inherited Syphilis with Atrophy. H. Barbier.—p. 1225.
*Filariasis. A. Panayotatou.—p. 1230.
Thrombosis in Vena Cava. M. Pommay-Michaux and M. Boué.—p. 1234.
Diplococcus in Blood in Influenza. M. Pommay-Michaux, F. Moutier and J. Michaux.—p. 1235.
*Mirror Writing. C. Mirallié and Devès.—p. 1238.

*Latent Tuberculous Peritonitis. E. Joltrain and P. Baufle.—p. 1241.
Heart Disease and Fitness for Military Service. A. Clerc.—p. 1246.
No Benefit from Transfusion of Convalescent's Blood in a Case of Influenza. R. Morichau-Beauchant.—p. 1247.

The Wassermann Reaction in Atrophy from Inherited Syphilis.—Barbier relates that in ninety-three infants with marked atrophy a positive Wassermann reaction was obtained in 33 per cent. and others presented signs of syphilis so that fully 42 per cent. were unmistakably syphilitic, and a number of others probably had the inherited taint likewise. But tuberculosis and alcoholism must be incriminated in others. Atrophy of alimentary origin is spontaneously and rapidly curable when the diet is corrected, but atrophy from a congenital taint is quite another thing. It may develop with the best of breast feeding and treatment has to be tentative, and it takes great patience. When inherited syphilis is involved, specific treatment may transform the infant, but mercury should be given extremely cautiously and in minute doses. Some infants with atrophy improve wonderfully under mercury, while others show no gain or the symptoms may even become aggravated under it, the children being unable to bear the slightest therapeutic intoxication.

Filariasis.—In the first of Panayotatou's two cases the filariasis was located in one labium and in the other case in the glands in the inguinal region. Severe local pain and great tumefaction were explained by discovery of the filaria in the blood. No treatment has proved effectual: prophylaxis consists in avoiding being bitten by mosquitoes and drinking contaminated water.

Mirror Writing.—Summarized recently, page 527.

Latent Tuberculous Peritonitis.—Joltrain and Baufle have had charge of a special service for gastrointestinal disease, and they have encountered a number of cases of unmistakable intestinal disturbances for which none of the usual causes seemed to be responsible. The general impression was that of incipient tuberculosis, but the lung findings were practically negative and vague digestive disturbances called attention to the abdomen. Radioscopy revealed always an enlargement of the ileum with constricted segments below and possibly at other points. This stenosis comes and goes, but the parts involved are more or less immovable from adhesions, evidently relics of an old infectious process. These adhesions generally spread like a fan; this can be palpated, and the palpation findings were confirmed at necropsy in two cases. The whole trouble is insidious and readily misinterpreted. If latent tuberculous peritonitis were sought for as a routine measure the same as pleurisy, it probably would be found equally frequently. Possibly this may be the explanation of dysmenorrhea in certain cases or of the disturbances for which the appendix may be incriminated in young girls.

Journal de Médecine de Bordeaux

November, 1918, **89**, No. 11

Reconstruction of Upper Lip. W. Dubreuilh.—p. 311.
Tuberculosis and Exophthalmic Goiter. Creyx.—p. 314.
Iodin Internally in Treatment of Toxic Gases and of Influenza. L. Boudreau.—p. 317.

Journal d'Urologie, Paris

February, 1919, **7**, No. 4

*Wounds of Posterior Urethra. Marion.—p. 385; O. Pasteau.—p. 407.
Factitious Disease of Urinary Apparatus. Janet.—p. 415.
Pyelonephritis in the Wounded without Wound of the Kidney. R. Grégoire and F. Marsan.—p. 425.
Foreign Bodies in Urinary Passages. R. Uteau and R. Schwab.—p. 465.
*Illumination for Surgical Exploration of the Bladder. R. Uteau and R. Schwab.—p. 469.

Wounds of Posterior Urethra.—Marion reviews the management of the case after it reaches the hospital in the home territory. Pasteau discusses the measures to be applied from the very first to the last, both in the zone of activity, the zone of communications, and the home territory. These communications were presented at the fourth meeting of the chiefs of the *centres d'urologie*, and the discussions which followed are given also.

Illumination of the Bladder.—Uteau and Schwab expatiate on the advantages of using the cystoscope as an aid in throwing light into the depths of the well formed by the suprapubic incision of the bladder. The cystoscope introduced by the natural route illuminates the depths of the bladder most instructively, without encroaching on the field of operation.

Lyon Chirurgical

September-October, 1918, **15**, No. 5

*Diaphragmatic Hernia after War Wounds. L. Bérard and C. Dunet.—p. 509.
*Wounds of Brain. R. J. Weissenbach and M. Audibert.—p. 531; F. Albert.—p. 567.
*Thrombophlebitis of Cranial Sinuses. Bellin, Aloin and Vernet.—p. 626.
Aerial and Traumatic Shock. G. Lardennois and J. Baumel.—p. 637.
*Oculomotor Paralysis with Fracture of Petrous Bone. A. Mardellis.—p. 645.
*War Wounds of Maxillary Sinus. Vandenbossche.—p. 654.

Strangulated Diaphragmatic Hernia After War Wound of Chest.—In the case described with illustrations by Bérard and Dunet the sixth rib had been fractured. Some splinter of the bone had evidently irritated the diaphragm, and the constant movement of the latter increased the irritation with gradual laceration and, by the end of the fourth month, hernia through the breach thus formed, and the hernia became strangulated. There were no symptoms from the heart and lungs, no meteorism, and only pain around the umbilicus, arrest of passage of feces and gases, vomiting and almost absolute gastric intolerance. Some digestive poisoning was assumed at first, and even up to the fourth day on account of the absence of intestinal symptoms with the ileus. Before the strangulation, the only symptoms had been a painful tension, felt near the thorax, accompanied by gurgling sounds, most pronounced after meals and in the reclining position. Even fluids were vomited almost at once, but it is possible that during the briefly transient period before the stomach expelled the fluid, auscultation might have given the clue. The right-angled incision gave access to both thorax and abdomen. Three fourths of the stomach and 42 cm. of the transverse colon had slipped through the breach. No tendency to gangrene was found at necropsy, but there were numerous solid intrapleural adhesions between omentum and pleura.

Wounds of the Brain.—Weissenbach and Audibert warn that the presence of some foreign body is indicated when there are recurring aseptic puriform meningeal reactions. In a case described this recurring reaction occurred in the course of a suppurative ventricular ependymitis consecutive to a scrap of shell having penetrated the brain. The symptoms from the meningeal reaction subside but as the underlying cause persists, the reactions develop anew. The prognosis is thus grave unless the primal cause is sought and removed.

Albert advocates primary suture after wounds of the skull and brain and reports twenty-nine cases to illustrate the advantages of suturing the dura at once without draining. After the wound has been thoroughly cleared out, the danger of infection is always from without. Hence, by prompt suture of the dura and of the scalp, this danger is averted. Drainage should be reserved for the entirely exceptional cases, and tamponing of the wound should never be done. He describes in turn the different classes of wounds, and states that in his twenty-nine cases the immediate results were excellent in all but two cases in which the dura had been torn so much that the suture could not be realized. Even if it is known that there is an inaccessible splinter in the depths of the wound, he insists that primary suture is still the best procedure, ensuring healing by primary intention.

Thrombophlebitis of Cranial Sinuses.—Bellin and Aloin report a case of this kind originating in a carbuncle at the back of the neck in an Arab soldier. Tetaniform convulsions and facial paralysis were accompanied by the Gradenigo syndrome, paralysis of the fourth to the seventh nerves, and necropsy revealed abscesses and thrombosis through the whole venous system of the dura mater and brain.

Oculomotor Paralysis After Fracture of Petrous Bone.—Mardellis' patient was injured handling a log. The fracture of the apex of the petrous bone was followed by unilateral

and isolated external oculomotor paralysis, paralytic convergent strabismus, with complete recovery in six months.

War Wounds of Maxillary Sinus.—Vandenbossche analyzes his experience with sixteen cases of this kind. They demonstrate the fine results that can be realized with collaboration of specialists in rhinolaryngology and plastic facial surgery.

Paris Médical

March 1, 1919, **9**, No. 9

Pulmonary Manifestations of Influenza. F. Rathery, Rault, David and Thomas.—p. 161.
Classification of Spontaneous Pneumothorax in the Tuberculous. C. Sabourin.—p. 170.
Artificial Pneumothorax in Treatment of Gangrene of Lung. P. E. Weil.—p. 180.
*Military Utilization of the Tuberculous. A. Gaussel.—p. 182.
Emphysema with Tuberculous Pneumothorax. C. Mantoux.—p. 185.
Pulmonary Tuberculosis after War Wound of Lung. A. Challamel. —p. 186.
Relapses in Influenza. Y. Maignial.—p. 190.

Tuberculous Soldiers.—Gaussel was appointed in 1914 to reexamine the men who had been discharged from military service on account of tuberculosis during the twenty-seven years preceding the war. Recently he reinvestigated the present status of those whom he had passed in 1914 as having recovered sufficiently to be capable of military duty in some form. Of the total 496, 172 were found unfit for service; 202 had apparently completely recovered and were passed for active service, and 122 had been passed for light duty only, the auxiliary service. Of a total of 310 accepted, 246 were still in the service at the close of the war, including 135 in active service. Classifying them by ages shows that the larger proportion of the permanently cured were among the men between 25 and 35.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Feb. 22, 1919, **49**, No. 8

*The Influenza Heart. H. Eichhorst.—p. 225.
*Laceration of the Tentorium in the Newly Born. H. Vischer.—p. 230.
*Absorption in Sugar Treatment of Tuberculosis. H. Bodmer.—p. 238.

March 1, 1919, **49**, No. 9

Unreliability of Serodiagnosis in Pregnancy. E. F. Bolli.—p. 257.
Treatment of Seborrhea of the Scalp. H. Merz.—p. 266.
Treatment of Chronic Alcoholism. E. Koechlin.—p. 277.

The Heart in Influenza.—Eichhorst states that he found anatomic evidence of injury of the heart from the influenza in only 0.3 per cent. of his 2,411 cases, but functional disturbances were extremely common and characteristic. They assumed the form of tachycardia or bradycardia, extra systoles or cardiac neuralgia but were never severe enough to endanger life. He describes examples of each type and calls attention in particular to the case of a physician who was suddenly surprised with intense tachycardia in the midst of apparent health. The heart beat was 200 with a pulse of only 148. Eichhorst advised him to go to bed or lie down, eat only fluid food, avoid tea and coffee, and he prescribed a sedative and heart tonic. The sixth night the tachycardia subsided during sleep; on waking the heart beat was only 84. The heart irregularity had been ascribed to abuse of coffee and tobacco but as the tachycardia subsided, symptoms of afebrile influenza became apparent and persisted for a week. Bradycardia was more frequent; cardiac neuralgia was encountered only in three cases. In all these influenza heart cases the patients were men; possibly, Eichhorst remarks, alcohol and tobacco may have contributed to the functional disturbance.

Intrameningeal Hemorrhages in the Newly Born.—Vischer analyzes what has been written on laceration of the tentorium during delivery, and reports the findings in this respect in 186 fetuses and newly born children. In 112 of the cadavers nothing visibly pathologic was found in brain or meninges. In 51 of the other 74 the tentorium had been torn, with considerable hemorrhage resulting in 27. In 24 there was no or only slight hemorrhage. In 23 there was hemorrhage but the tentorium was apparently intact. Laceration of the tentorium thus had occurred in 27.3 per cent. of the 186 cases. The birth process had been apparently normal in some and no regular connection with the mode of delivery could be detected. The cadaver of one adult male showed laceration of the tentorium after lateral contusion of the head as the man was looking out of a car window while passing a wall that stood close to the track. Vischer agrees with Beneke that laceration of the tentorium in itself should not be cited as the cause of death. The resulting hemorrhage is the danger. The intrameningeal and other hemorrhages are probably synchronous. He remarks in conclusion that the birth process injures the skull contents more than has hitherto been realized. This assumption is confirmed not only by the findings here analyzed but also by Paul's ophthalmoscopic findings in the newly born.

Absorption with Sugar Treatment of Tuberculosis.—Bodmer reports the results of research on the absorption processes after intramuscular injections of 50 per cent. sugar solution by the Lo Monaco technic. He has thus treated fourteen patients, making a total of 500 injections. He was surprised to find that all the injected saccharose was eliminated through the kidneys, and all in the course of forty-eight hours. The maximum of the elimination was reached in from four to seven hours. The sugar was eliminated without being inverted, and hence cannot have any causal therapeutic action, but the symptomatic effect of reduction of exudation and irritation was pronounced, with striking reduction in the amount of sputum. This action was most evident in the comparatively recent cases. He has never seen such a pronounced effect from any drug, and the only explanation can be the modification of the osmosis and, possibly, a vasomotor influence. Other sugars should be given a trial, and this treatment be extended to chronic bronchitis, etc.

Gazzetta degli Ospedali e delle Cliniche, Milan

Feb. 6, 1919, **40**, No. 11

Factitious Orchi-Epididymitis. R. Pianori.—p. 81.

Feb. 9, 1919, **40**, No. 12

*Staphylococcemia Simulating Typhoid with Relapses. U. Baccarani. —p. 89.

Staphylococcemia Suggesting Typhoid.—Baccarani insists that the staphylococcus does not always induce suppuration. It may produce a set of symptoms closely resembling those of typhoid, and it may return two or three times with intervening periods of latency, as if the disease was typhoid with one or more relapses. In one typical case a girl of 8 had apparently recovered from a small ulcerative lesion on the gum, but three weeks later came a chill and fever, the latter persisting for nearly two weeks and then it subsided completely. The child's aspect, lack of appetite and diarrhea led to the assumption of typhoid, until the fever subsided completely. After a few days of apyrexia, the temperature ran up again, with meteorism, diarrhea and an area of dulness. This attack lasted for a little more than two weeks, and again it subsided. After an interval of a few days the temperature ran up again for a third attack, and typhoid was then regarded as certain and the child was sent to the hospital, forty-two days after the initial chill. The tests for typhoid were negative, while staphylococci were cultivated from the blood. Each one of the attacks had produced the clinical picture of typhoid in every particular, he says, but the fourth and last attack—which occurred while in the hospital—was followed by an abortive osteomyelitic process in the tibia which retrogressed without suppuration, and the child left the hospital apparently cured, after a three months' stay. In the intervals between the pseudo-typhoid attacks, she felt well and ate with appetite. In a second case the onset and course were those typical of typhoid, and the woman was being treated for typhoid in the hospital when, three weeks after the first symptoms, the fever subsided by lysis and the other symptoms disappeared, the spleen returning to normal size. Four days of apyrexia followed; then the "typhoid" returned and the liver became much enlarged but without any special tender point. This second attack lasted for two weeks and then apparently complete recovery followed, by the end of the fourth month.

Baccarani has encountered a number of such cases but reports in detail only three, calling attention in particular

to the extreme enlargement of the liver during the febrile attacks and its prompt subsidence to normal size during the afebrile intervals. The clinical picture of typhoid was complete even to the rose spots in some of the cases. De Rossi has recently reported that in four cases of supposed typhoid, confirmed by necropsy findings, no typhoid bacilli were found, but the *Staphylococcus pyogenes-albus* was cultivated from the spleen. Further testimony incriminating the staphylococcus comes from Pisa and Bologna, where Bonardi and Bruschettini noted epidemics of staphylococcus sepsis simulating typhoid fever. Staphylococcus sepsis, however, does not always induce this typhoidal state. There may be very high fever, but the patients feel well and eat with appetite. This lack of harmony between the fever and the general condition may serve as a clue to staphylococcus infection. Transient congestion in lungs and pleura is sometimes encountered during an attack, with the pneumococcus in the sputum. The patients complain at times of pains at the epiphyseal line of various bones, but there are no objective findings. In none of his cases was anything found to indicate suppuration at any point, although some spots of slight and transient redness, pain and swelling occurred at times in the skin, suggesting an impending furuncle, but always promptly retrogressing without leaving a trace.

Policlinico, Rome

Feb. 16, 1919, **26**, No. 7

*The Antecedents in Diagnosis of Nervous Maladies. G. Mingazzini.—p. 193.
Bacteriology of Influenza Sputum. P. Timpano.—p. 200.
*Quinin by the Vein in Malaria. A. Nicotra.—p. 202.
Motor Aphasia and Facial Paralysis after Injury of Child's Head: Recovery. T. Isidori.—p. 206.
Fracture from Muscular Strain. A. Ferri.—p. 207.

Feb. 23, 1919, **26**, No. 8

Etiology of Influenza. F. Micheli and G. Satta.—p. 225. Concluded in No. 9, p. 257.
Spread of Tuberculosis. T. Rossi-Doria.—p. 237.
Advantages of the Pécharmant Apparatus for Fractures. U. Daretti.—p. 240.

The Anamnesis.—Mingazzini expatiates on the importance of what he calls the catamnesis, that is, the eliciting from the patient the preceding history of the case. The way this is done shows the master physician. It is equally difficult when the patients are great talkers and when they are taciturn, but the main difficulty is a lack of attention to important details while the unimportant are exaggerated. He outlines a general scheme for interrogating the patient after letting him tell his story in his own way, if not too prolix. He adds that few are aware how many nervous symptoms labeled with the convenient diagnosis of neurasthenia are in reality the result of abuse of tobacco. The patient will seldom mention that he has been advised by other physicians to give up tobacco. One of the most common errors in diagnosis is when a new morbid process develops with the same symptoms as an older process, as for example when a person subject to migraine in youth develops cerebral pachymeningitis. The new symptoms seem to be merely the same old migraine. Persons with sexual neurasthenia can often be recognized by their pale and timid aspect alone. Nephritis and diabetes may at first manifest themselves by nervous symptoms alone, and only examination of the urine will give the clue to the cause of the pains and other nervous symptoms. Much time is wasted on inconsequent details in case reports read in the classes. The students pay no attention to the account of the eruptive diseases in childhood, date of menstruation, trauma, heredity, etc., and time is wasted in their enumeration. This does not fix in the minds of the hearers the fundamental points in the antecedents; these can and should be reduced to a minimal common multiple. "In short," he concludes, "may it be said of us what was said of a scientist over a century ago with some surprise: *Il était un savant et pourtant pas bête.*"

Quinin by the Vein.—Nicotra insists that quinin injected intramuscularly does not reach the blood in time to act on the malarial parasites at the most favorable moment or with the most effectual concentration. It reaches the blood only a little at a time. On the other hand, when injected into a vein it reaches and acts on the parasites at exactly the desired moment and in the maximum strength. He urges therefore to begin with intravenous injection of the maximal dose at the very first attack when the patient comes for treatment. In the majority of his hundred cases thus treated, one injection proved sufficient; rarely, two were necessary and, only quite exceptionally, three. There was one recurrence among the eleven cases of estivo-autumnal tertian and five recurrences among nine cases with irregularly long intervals. None of the others have had any attacks since the intravenous treatment. He declares that we can count on curing all primary cases by intravenous injection of 1 gm. of quinin during the febrile attack and also cases of recurrence with short intervals. When the injection is made while the fever is rising, he could not see any difference in the course of the attack from the similar attacks without quinin. The latter never aborts the attack in question. During the declining phase of the fever the young parasites have worked their way into the red corpuscles. With the estivo-autumnal form he injects a little more of the quinin, up to 1.25 gm.

Archivos Brasileiros de Medicina, Rio de Janeiro

November, 1918, **8**, No. 11

*Diagnosis of Incipient Leprosy. M. Mourão.—p. 677.
Deficiency Diseases. G. Riedel.—p. 693.
Juvenile Paretic Dementia. W. De Almeida.—p. 706.

Incipient Leprosy.—Mourão describes with illustrations what he calls a new sign of leprosy. It is the result of the wasting away of the muscles on the ulnar side of the hand so that the edge of the hand is thin, forming a sharp edge. The muscles controlling the little finger and the hypothenar region become atrophied and the palm smoothes out on that side. The muscles on the thumb side are not affected; the thenar eminence stands out more prominently from the contrast. The muscles of the inner aspect of the foot on the same side show similar atrophy, and there is loss of all sensibility, although the outer half of the foot and leg persist normal. He has observed these findings as the only manifestations of leprosy at first in some cases, the presumptive diagnosis confirmed later by the course of the disease. Among the other early signs he notes the extreme pallor in the nervous form of leprosy, while in the cases which develop the tubercular form later, the face becomes uniformly redder, not a bright red, but a little deeper red than normal. The veins are prominent, the skin looks smooth and shiny and is extremely sensitive, and any rubbing induces an actual erythematous redness. The loss of sensibility occurs in asymmetrical regions in a characteristic manner, affecting the ulnar side of the hand and the opposite side of the forearm up to the elbow; in the foot the inner aspect of the foot and the outer aspect of the leg—all on the same side of the body. A sensation of cold, even on warm days, is an early symptom of leprosy. Some lepers complain of hot flashes like those of the menopause, along with intense and continuous chilliness. He advises to be on the lookout for leprosy all the time, even when it seems preposterous to suspect it, and relates a number of cases in which treatment had been given for everything but the correct diagnosis. Mourão knows of a priest, a physician and a midwife, who have not allowed the fact that they have leprosy to interfere with the practice of their professions, and he has noted leprosy in barbers, servants and others. He mentions further a specific case of unacknowledged leprosy in a prostitute and one in a public school teacher, and refers to dozens of similar cases. One young man had been treated for progressive muscular atrophy and rheumatism for two years without benefit until his confession that his father had advanced leprosy cleared up the maze of symptoms. Mourão found that chaulmoogra oil arrested the disease as a rule, but this is a two-edged sword as it induces severe digestive disturbance. In conclusion he describes the Hospital dos Lazaros at Rio with its large gardens, music rooms, cinemas, orchestra, library and work rooms, as the sōlution of the national leprosy problem. This prevents contagion of others; it is a leper asylum from which no one wants to escape, a prison without bars, but its capacity is limited. Similar establishments scattered throughout the country would settle the question of prophylaxis.

Archivos Españoles de Pediatria, Madrid

December, 1918, **2**, No. 14

Influenza in Children. C. S. de los Terreros.—p. 705. Conc'n.
*Environment in Neuroses in Children. C. Juarros.—p. 719.
Malformation of Urinary Apparatus. F. Iruegas.—p. 724.

The Environment in Neuroses in Children.—Juarros protests against the usual disregard of the conditions in the environment when a child presents a nervous tendency. A change to another environment will often cure a severe neurosis, or the removal of some one person from contact with the child will sometimes prove the key to the problem. In one of two cases reported a girl of 8 had been having three or four convulsions a week for a year, evidently of hysteric origin. Doctor after doctor was consulted and all diagnosed hysteria and ordered sedatives and general hygiene. When the child was brought to Juarros, he investigated conditions in the home and thus found that a cousin who lived in the family was subject to hysteria and convulsions. As this woman was a fixture in the family, the child had to be sent away from this mental contagion. She was placed with other relatives, and after the first month had no more convulsions during the following five months to date. In the other case the girl of 7 was unusually bright in school and her parents were "showing her off" constantly to friends, and taking her to shows, etc., so she did not get to bed till 12 or 1 and she had no rest during the day. Restless, agitated, light broken sleep, talking in her sleep, her condition resembled that of maniacal excitement in adults. The general health suffered, the appetite was lost, and she was growing thin when Juarros was consulted. He convinced the parents of the evils of their management of the child, and when this was corrected all disturbances speedily subsided. Every one admits theoretically that the seed for neuroses in adults is generally sown in childhood, but in the specific case this is too often forgotten.

Brazil Medico, Rio de Janeiro

Jan. 4, 1919, **33**, No. 1

*Differentiation of Filaria in Blood and Feces. H. de B. Aragão.—p. 1.
*Syphilis and Obstetrics. F. Magalhães.—p. 2.

Differentiation of Filaria and Helminths.—Aragão calls attention to a modification of Thoma's solution which colors most of the parasites in stools and blood and preserves them, while dissolving out the red corpuscles. The formula is: gentian violet, 0.1 gm.; sodium chlorid, 0.35 gm.; distilled water, 100 gm., and acetic acid, 0.3 gm. About 0.5 c.c. of the blood is added to 5 c.c. of this solution. In examining for filaria, use 2 c.c. of the solution for 0.5 c.c. of feces. Both amebas and their cysts show up well by this means and keep perfectly for many days, the cysts for several months; also lamblias, blastocytes, bacteria and the ova and the larvae of helminths all show up well in this acetic solution of gentian violet.

Syphilis and Obstetrics.—Magalhães reviews the six principal ways in which syphilis influences pregnancy, from the prevention of conception to interference with delivery. Syphilis may be incriminated for certain cases of sudden deaths during delivery which otherwise seem inexplicable. The suprarenals have been so damaged by the syphilis that the woman's system is unable to bear the strain of parturition, or, if the cerebral vessels have been damaged as well, the toxic hypertension in this case produces a terminal hemorrhage in an eclamptic convulsion.

Prensa Medica Argentina, Buenos Aires

Jan. 10, 1919, **5**, No. 22

*The Arrhythmias in Prophylaxis and Treatment of Heart Disease. G. N. Martinez.—p. 217.
Clamps etc. for Surgical Work. E. Finochietto.—p. 220. Cont'n.
Echinococcus Cyst Simulating Peritonitis. J. P. Garrahan.—p. 221.
*Hexamethylenamin in Typhoid. L. Ymaz and L. Ayerza.—p. 224.
Conc'n.

Arrhythmia as Guide to Treatment of Heart Disease.—Martinez declares that his observation of cases of heart disease has convinced him that arrhythmia is always a sign of pathologic reduction of the functional capacity of the heart, the result of actual intracardiac lesions of some kind. He insists that the nervous system alone is unable to modify the rhythm if the heart is absolutely histologically and functionally sound. He has found that the cadaver always revealed more or less pathologic conditions in the heart in every case of arrhythmia that came to necropsy. He adds that sinusal arrhythmias and the simple so-called reflex extrasystole are a warning signal of heart disease that should never be disregarded. The Wassermann reaction has demonstrated the syphilitic factor in most of the arrhythmias in childhood as well as in adults; rheumatism and smallpox contribute another percentage, as also tuberculosis and derangement in the endocrine glands. The products of brain fatigue, such as accumulate in consequence of insomnia and other intoxications, make their deleterious influence felt on the heart. Prophylaxis requires hygiene and avoidance of irritation from the toxic action of unsuitable food and drinks and other causes, and complete moral and material repose for the nervous system. He advises to tranquillize the patient, repudiating all ideas of a grave condition, soothing the nervous system, investigating the glands with an internal secretion, and diverting the patient's attention from his heart. It behooves the physician to discover the incipient evil, and it behooves the patient to ignore it until hygiene, dietetics, drugs and suggestion from the physician have convinced him of the immense reserve power with which the heart is endowed. Then the mystery of his heart disease can be revealed to him.

Hexamethylenamin in Typhoid.—Ymaz and Ayerza here conclude their experimental study of the physiologic isotonicity of solutions of this drug and of its intravenous administration in typhoid and its elimination.

Jan. 20, 1919, **5**, No. 23

*The Leukocytes in Immunization. A. Bachmann.—p. 225.
*Vertebral Sign of Syphilis. M. R. Castex.—p. 232.
*Albumin in Cerebrospinal Fluid. A. Prunell.—p. 232.

The Leukocytes in Immunization.—Reviewed April 5, p. 1041, when published elsewhere.

Sign of Tardy Inherited Syphilis.—Castex emphasizes the diagnostic importance of bifurcation of the spinous process of the first lumbar vertebra as a frequent sign of inherited syphilis. One or more vertebrae may be involved; in one case the bifurcation was in the twelfth dorsal vertebra. He remarks that there are no anatomic or embryologic reasons for this bifurcation, and it must be regarded as pathologic. To date he has found it only with inherited syphilis.

Quantitative Test for Albumin in Cerebrospinal Fluid.—Prunell prepared a set of seven test tubes containing from 0.7 to 7 parts cerebrospinal fluid known to have an albumin content of 1.40 gm. per liter. Enough physiologic serum is added to each tube to make ten parts, namely from 9.3 to 3 parts. Each test tube contains 2 c.c. of the mixture, and to this are added 10 drops of a 25 per cent. solution of trichloracetic acid; the tube is fused, heated to 100 C. and then to 110 C. for ten minutes. The tubes are then placed in a frame against a black background. The fluid to be examined is treated in the same way and then it is placed beside one of the standard tubes while a printed card is slipped behind both. The tube which allows the letters on the card to be read with the same facility through both tubes serves as the index for the albumin content. Ten different fluids were tested by this diaphanometric method and also by the gravimetric, the gasometric and chronometric procedures, and the comparative findings were found approximately the same. Two illustrations accompany the article.

Semana Medica, Buenos Aires

Jan. 9, 1919, **26**, No. 2

Anatomy of Pterygoid Process. J. J. Cirio.—p. 27.
*Indirect Operative Treatment of Gastric Ulcer. C. Alvarez (Oviedo, Spain).—p. 30.

Indirect Operative Treatment of Gastric Ulcer.—Alvarez operated on account of an ulcerated lipoma straddling the upper spine. The woman of 40 had had stomach symptoms and hemorrhages typical of gastric ulcer for thirty-eight months. Two days after excision of the tumor in the back

the stomach symptoms subsided completely and permanently with no return during the eight years later until the woman died of phthisis. This remarkable indirect cure of the gastric ulcer confirmed the nervous origin of the latter, and suggested that a similar lesion artificially induced might cure gastric ulcer in other cases. Since then Alvarez has attacked this same group of nerves as in the first case, namely, the sixth, seventh, eighth and ninth pairs, reaching them through a bilateral incision about 8 cm. long, cutting down to the bone, from the sixth to the tenth rib, three fingerbreadths from the median line. The lips of the wound are kept apart by retractors held by an assistant. Then each intercostal space is incised perpendicularly to the ribs, cutting through the muscle. The edges of this muscle are drawn apart and with the bistoury the deep fascia is cut parallel to the rib. Through this 5 mm. opening, the intercostal nerve is drawn up with a hook and seized with Kocher forceps, with care not to rupture any vessels accompanying the nerve, or to induce pneumothorax. The nerve is then severed and the central stump is well stretched, concluding with torsion. Experiments on the cadaver have shown that the effect on the nerve is stronger from the stretching than from the torsion. He gives the details of a number of cases of different types of disturbances, ulcer, hyperchlorhydria, hypersecretion and spasmodic stenosis, even ectasia of the stomach, all showing prompt and permanent benefit from this indirect treatment of gastric ulcer by *conmoción a distancia del gran simpático*, as he calls it. It has little if any effect on disturbances from organic stenosis; these cases call for a gastro-enterostomy. The benefit from this indirect operation confirms the assumption that nervous influences induce the disturbance in the stomach; they shut off the blood supply at some point which permits autodigestion at this point, and also prevents normal repair. By severing the nerve connection, the circulation returns to normal as the stretching of the nerve tears the rami communicantes and breaks up their nerve connection with the stomach. Notwithstanding the persistence of the hyperchlorhydria, the ulcer does not return, and in time the stomach outline approaches normal once more. The operation amounts to a physiologic pylorectomy as it removes the causes maintaining spastic closure of the pylorus.

Siglo Medico, Madrid

Jan. 18, 1919, **66,** No. 3397

*Valvular Disease. Huertas.—p. 41.
Carrel Treatment of Infected Wounds. G. Rottenstein.—p. 45.
Conc'n.

Valvular Disease.—Huertas gives a number of examples to illustrate the vicious circle in heart disease, and the various phases through which it passes: the physical, the chemical, the dynamic and the terminal, with either mitral or aortic insufficiency or stenosis.

Jan. 25, 1919, **66.** No. 3398

Autointoxication. J. M. Rosell.—p. 61. Cont'n.
*Puerperal Pathology. P. Luengo.—p. 65.
Advantages and Disadvantages of Yellow Oxid of Mercury in Salve Form. Sicilia.—p. 67.
Smallpox at Barcelona. F. P. Freixa.—p. 69.

Puerperal Embolism.—Luengo reports the case of a woman of 40 taken suddenly with intense dyspnea, high fever and acute pain in the back and side of the right side of the chest, but there was no cough, no expectoration and none of the physical findings of pneumonia. She had given birth to her third child three weeks before. The puerperium had been normal, the woman getting up in five days, but inquiry elicited that she had been feeling a dull pain in the region of the left adnexa. The assumption of pulmonary embolism from a puerperal thrombophlebitis was confirmed by the persistence of the pulmonary symptoms for eleven days, when the fever subsided and a persisting cough developed with blackish bloody expectoration. After a week, phlegmasia alba developed in the femoral vein region and, eight weeks later, in the leg on the other side. These gradually subsided but by the end of the sixth week there was a new attack of embolism in the lung which ran a similar course. To ward off further embolism, the woman lay still in bed for three months and recovery then seemed complete. Treatment had been with revulsions, sedatives, quinin and serotherapy, ichthyol in the vagina and antistreptococcus serum. The general condition kept good throughout, the blood findings within normal range. The embolus causing the lung trouble must have been aseptic or very slightly septic.

Nederlandsch Tijdschrift v. Geneesk., Amsterdam

Jan. 18, 1919, **1,** No. 3

Radiobiology. H. Zwaardemaker.—p. 239.
*Bullet Wound of Heart. R. de J. de Jong.—p. 253.
Influenza in the Pregnant. J. A. Van Dongen. — p. 257.
Paralysis with Infectious Sore Throat. J. E. Schulte.—p. 264.

Bullet Wound of Heart Without Opening Pericardium.—In de Jong's case necropsy revealed that a prompt operation might have saved the young woman. The bullet had bored into the outer layer of the pericardium but the inner layer had stretched without rupturing. The impact was such that the distended ventricle was ruptured by the bullet, still driving the inner layer of the pericardium before it. There was thus a hole into the ventricle although the inner aspect of the pericardium was smooth and free from lesions throughout. He has found sixteen similar cases on record of gunshot wounds of the heart, without perforation of the pericardium, some with recovery.

Hospitalstidende, Copenhagen

Jan. 1, 1919, **62.** No. 1

*Diagnosis and Treatment of Kidney Stones. T. Rovsing.—p. 1.
Influenza in 1918. O. Thomsen.—p. 24.

Kidney Stones.—Rovsing here epitomizes his twenty-five years' experience in the diagnosis and treatment of kidney stones, a total of 533 cases, including 185 with blood borne infection and 221 in which the operation revealed aseptic conditions, with 127 aseptic cases in which no operation was attempted. In the majority of the surgical cases the kidney stone caused no symptoms until suddenly pains with hematuria or pyuria attracted attention; this may occur at any time in life from early childhood to advanced age. When a stone of this kind has been removed, the kidney shows no tendency to form other concretions. A transient fever, or a course of one-sided diet, may be the occasion for production of urates in such amounts as to entail a kidney stone. As an example of this he mentions the Swedish surgeon Lennander who developed a kidney stone apparently as the consequence of a course of "dry diet" taken at Nauheim on account of heart disease. On the other hand, it is extremely rare for the congenital uric-acid diathesis to entail kidney stones calling for surgical intervention. The gravel and small stones are passed without need for an operation. Pains and hematuria in these cases are generally traceable to uratic nephritis or perinephritis for which nephrolysis seems to be the best treatment. One man has ten or twelve attacks each year of left ureter colic and passes gravel and stones no bigger than a pea, but radiography has never shown any considerable stone in the kidney. The right kidney persists normal.

Phosphaturia is frequently accompanied by large concretions; in four cases in which the tuberculous kidney had been removed, anuria developed later and he found the pelvis filled with large and small phosphate stones, one of which had become impacted in the ureter. The majority of cases of phosphate stones in the kidney are due to accidental or artificial phosphaturia. Frequently this is the result of a therapeutic course of alkaline mineral waters, possibly given to combat nephrolithiasis, regardless of the law that when a foreign body is laved in a solution of a salt, the foreign body becomes incrusted with the salt, even when the urine is limpid and sterile. Instead of dissolving the concretion, alkaline mineral waters add to its size by deposits of salts. Long treatment of rachitis with calcium salts may also lead to stone production in the kidneys.

Rovsing has encountered only two cases of cystin stones and both patients were permanently cured by removal of the stones and restriction afterward to distilled water. One was a woman of 32, the other a girl of 4. Both had had symptoms of cystinuria since early childhood, the woman's attacks of

pain returning finally as often as every two weeks, always on the left side, and not spreading. During the five years since the nephrotomy the urine has kept free from cystin.

In some cases the disturbances from the supposed kidney stone proved to be due to the binding of the kidney in the fibrous degenerated true capsule; slitting this capsule and releasing the kidney cured the disturbances. In other cases a partial hydronephrosis from some aberrant vessel was the cause of the pains and hematuria, or a movable kidney, or appendicitis simulated kidney stones. Appendicitis can be differentiated by the pain induced in the cecum by pressure on the descending colon. Again and again, he states, patients sent to the hospital with the diagnosis of appendicitis failed to respond positively to pressure on the descending colon, exculpating the appendix, although there was pain at McBurney's point and the urine was limpid and nearly or entirely free from albumin; a stone impacted in the ureter was responsible for the symptoms. In such cases the apparently normal urine may show microscopic hematuria. On the other hand, pressure on the descending colon may point to the appendix when the colic and hematuria prove to be merely the results of complicating colon bacillus nephritis. The dire effects of an utterly unnecessary nephrotomy in such a case are obvious.

With radiography it is important to inspect both kidneys and both ureters and the bladder as well. The stone may be found in the apparently sound kidney. One man of 40 had symptoms of stones but radioscopy was negative, and yet a catheter in the ureter met with an obstacle which the operation proved to be a stone, and palpation of the kidney showed a cancer in the upper part of the kidney. The ureter was ligated below the stone and the whole mass with the kidney was excised with complete recovery of the patient. One patient seemed to have an actual urate stone factory in his left kidney, the repeated attacks of colic occurring through many years, with the passage of numerous stones up to the size of a pea, but radiography was always negative. The findings were also constantly negative in a man who had a large number of calcium carbonate stones in his right kidney. The negative findings here must have been due to changes in the tissues around. Triple phosphate and urate stones cast faint shadows; in the obese possibly none at all. In thirty-two of 195 cases in which a stone was found at the operation, the roentgen findings had been negative. In six other cases the findings had been absolutely misleading. In four other cases colics from other causes coincided with calcified glands and the latter were mistaken for kidney stones.

In treatment of nephrolithiasis, he advises copious drinking of distilled water, as this washes out the kidneys without depositing more minerals. The patients can take up to 2 or 3 liters in this way, but it must be taken between meals and in small amounts, at most a quarter of a tumblerful at a time. He advises them to get the distilled water from a mineral water establishment instead of from the pharmacy where the water absorbs the odors from iodoform, phenol, etc., which gives the patients a distaste for it. We cannot hope to act on the stones except when they consist of urates and oxalates and are not larger than a pea, but with these, the course of distilled water often realizes a complete success. It is also extremely useful as a preparation for operative treatment in the infected cases and to follow the operation. He waits before operating, unless his hand is forced, to allow this distilled water course to rid the kidney of a certain amount of its toxins and bacteria. This may transform an absolutely inoperable bilateral case into an operable case, and even in the inoperable cases may keep the patients in good condition for years. One woman has kept in good condition during twenty-five years with her 2 liters of distilled water daily, although she still has coliuria and a large stone in the kidney as at first. The distilled water course after the operation is particularly important with the uric acid and oxalic acid diatheses, and it cured the two patients with cystinuria mentioned above—the first time on record in which cystinuria has been influenced by therapeutics. In conclusion Rovsing discusses the various operative methods applied and emphasizes the difference in the outlook according to the bacteriologic findings.

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*Treatment of Cancer. S. Nordentoft.—p. 129.

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*Lessons from War Restrictions in Food, M. Hindhede.—p. 183.

Treatment of Cancer.—Nordentoft regards as great progress the result of recent research by Kaminer and others showing that malignant growths can be influenced by serum and organ extract treatment; also that the diet has an influence on the growth of cancer. Thymus extract in particular seems to destroy cancer cells in vitro, even when diluted twenty-two times, or destroys 55 per cent. and 32 per cent. diluted twenty-three and twenty-four times. This suggests the possibility of destroying cancer in the living body by injection of thymus extract, which may also aid in elucidating the etiology. He adds that the best results to date with thymus extract have been obtained with fresh, unheated thymus extract. His own experience with it is still too recent for a final decision, but the patients bore daily injections of 10 c.c. without signs of intolerance, no general or local reaction or anaphylaxis. Denmark has no general institution for cancer research, and he urges others to follow this promising line of study, investigating the physiology of the thymus at different ages, the behavior of the thymus in persons with cancer, the effect of thymus extract on incipient cancers, and the species of animals that yield the most effective thymus extract; dog thymus to date has shown greater cancer destroying power than rabbit thymus. The thymus extract should be standardized and the essential principle isolated if possible. It will be interesting to see how injections of thymus extract affect the inoculability of mouse and rat cancers, and whether preliminary injections of thymus extract will ward off the development of Fibiger's nematode cancers in rats, and the Japanese cancers in rabbits, and, finally, whether they may not prove effectual in warding off recurrences in man after operations or radiotherapy.

The Wartime Food Supply.—Hindhede compares the food conditions in Germany and in Denmark during the war, saying that the war experiences have proved a test on an infinitely huge scale of the Voit-Rubner views of an adequate dietary as opposed to the Chittenden-Hindhede views. The food supplies in Germany should have been mobilized and managed on a true scientific basis, as efficiently as the military affairs. Instead of that, the farmers let their brothers in the cities starve while they fed their pigs. Ballod in Germany in 1917 confirmed Hindhede's assertion in 1915 that the German pig was perhaps the most dangerous of the forces with which Germany had to contend. In Denmark, on the other hand, the food commission consisted of four scientists (including Hindhede), and four representatives of the farming interests. All agreed that to feed grain and potatoes to cattle and swine meant a loss of at least 80 per cent. of the nutritional value. The logical consequence was the requisitioning of all the bread grain, of most of the barley, and of a large proportion of the potatoes, for food for the people. The stock of pigs had to be reduced to one third or even, in some places, to one tenth, but this did not frighten the commission. They insisted on reserving enough food for human beings and a 30 per cent. excess. The farmer members of the commission—taught by the evil experiences in Germany—accepted this plan, and their unanimous approval brought the whole country, town and farming districts alike, to approve and accept. The stock of cattle has dropped from 100 to 65 per cent. and of pigs from 100 to 17 per cent. The farmers ceased to lament the loss of their stock when they saw the dire effects in Germany of the opposite policy. The city people regretted the scarcity of meat, but they rejoice now that there has been no starvation and that the public health in general is in the best of conditions (apart from the influenza). Hindhede remarks in conclusion, "The German soldiers conquered France in 1871 with the aid—or in spite of—three fourths of a pound of meat a day, and they went into the present war on the same basis. Germany has paid a high penalty for clinging to the antiquated Voit-Rubner ideas of an adequate dietary."